# THE

# WATER QUALITY CONTROL PLAN

# (BASIN PLAN)

# FOR THE

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

# CENTRAL VALLEY REGION

## THE SACRAMENTO RIVER BASIN (BASIN 5A)

## THE SACRAMENTO-SAN JOAQUIN DELTA BASIN (BASIN 5B)

## THE SAN JOAQUIN RIVER BASIN (BASIN 5C)

**SECOND EDITION**

Third Printing 1992

CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
Central Valley Region
3443 Routier Road
Sacramento, California 95827

ATTACHMENT 4

# THE WATER QUALITY CONTROL PLAN (BASIN PLAN)
# FOR THE
# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
# CENTRAL VALLEY REGION

## SECOND EDITION
## (Third Printing, 1992)

## THE SACRAMENTO RIVER BASIN (BASIN 5A)
## THE SACRAMENTO-SAN JOAQUIN DELTA BASIN (BASIN 5B)
## THE SAN JOAQUIN RIVER BASIN (BASIN 5C)



## REGIONAL BOARD STAFF


This Report was Prepared Under the Direction of

Paul E. Jepperson, Supervising Engineer
Jerrold A. Bruns, Chief - Standards, Policies, and Special Studies

By

David F. Meith - Standards, Policies, and Special Studies
Sandra L. Gill - Administrative Unit
Leonor S. Black - Administrative Unit



CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
Central Valley Region
3443 Routier Road
Sacramento, California 95827

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 90-28

APPROVAL OF REVISION (EDITING AND UPDATING) OF THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER BASIN (BASIN 5A), SACRAMENTO-SAN JOAQUIN DELTA BASIN (BASIN 5B), AND SAN JOAQUIN RIVER BASIN (BASIN 5C)

WHEREAS:

1. The California Regional Water Quality Control Board, Central Valley Region (Central Valley Regional Board), adopted and the State Water Resources Control Board (State Board) approved the Water Quality Control Plan (Basin Plan) for the Sacramento River Basin (Basin 5A), Sacramento-San Joaquin Delta Basin (Basin 5B), and San Joaquin River Basin (Basin 5C) in 1975.

2. Division 7 of the California Water Code states that Basin Plans shall be periodically reviewed and, if appropriate, revised.

3. The Central Valley Regional Board revised and updated the Basin Plan to produce a new edition of the Basin Plan, which was considered at a public meeting on March 31, 1989.

4. The new edition of the Basin Plan deletes Chapter 1, Historical Beneficial Uses, and replaces it with Chapter I, Introduction; retains Chapter II, Present and Potential Beneficial Uses; deletes Chapter 3, Historical Water Quality Objectives, and replaces it with Chapter III, Water Quality Objectives; deletes Chapter 4, Water Quality Objectives, and replaces it with Chapter IV, Implementation; deletes Chapter 5, Implementation Plan, and replaces it with Chapter V, Surveillance and Monitoring; and deletes Chapter 6, Assessment of the Plan and Chapter 7, Surveillance and Monitoring.

5. Proposed changes to the existing Chapter 2 include adoption, by reference, of State Board Resolution No. 88-63, Sources of Drinking Water. This amendment was considered and approved in conjunction with Sources of Drinking Water Policy Basin Plan amendments of all Regional Water Quality Control Boards by Resolution No. 89-88, on August 17, 1989.

6. The Basin Plan revision is consistent with the requirements of Public Resources Code 21000 et seq. (California Environmental Quality Act).

7. The Central Valley Regional Board Resolution No. 89-056 was adopted in accordance with State laws and regulations.

8. Basin Plan amendments do not become effective until approved by the State Board.

THEREFORE BE IT RESOLVED:

That the State Board:

1. Approves the Basin Plan revision adopted by the Central Valley Regional Board under Resolution No. 89-056 with the exceptions and provisions stipulated in Item Nos. 2 through 6 below.

2. Disapproves the deletion of Marsh Creek and Marsh Creek Reservoir and their beneficial uses. These waterbodies and their beneficial uses are incorporated into Chapter II, Present and Potential Beneficial Uses. Where beneficial use designations are not consistent with those used by the Central Valley Regional Board, the inconsistencies shall be addressed in the next Triennial Review or Statewide Basin Plan Update processes.

3. Directs the Central Valley Regional Board during either its next Triennial Review or Statewide Basin Plan Update processes to:

   A. Delete or otherwise address the phrase on Page III-4 of the Basin Plan revision which reads: "...or where the fishery is not important as a beneficial use".

   B. Review and revise the beneficial use designations of the Delta for appropriateness and consistency with other State Water Quality Control Plans.

   C. Review and revise as appropriate, the statement on Page III-2 of the Basin Plan revision which reads: "The **fourth point** is that in cases where WQOs [water quality objectives] are formulated to preserve historic conditions, there may be insufficient data to determine completely the temporal and hydrologic variability representative of historic water quality. When violations of such objectives occur, the Regional Board judges the reasonableness of achieving those objectives through regulation of the controllable factors in the areas of concern."

   D. Designate site-specific beneficial uses and water quality objectives for the waterways in the Sacramento-San Joaquin Delta.

4. Approves the amendment with the understanding that in the future, the Water Quality Assessment, jointly developed by the Central Valley Regional Board and the State Board, will satisfy obligations to rank water quality limited segments pursuant to Section 303(d) of the federal Clean Water Act.

5. Approves with the understanding that the Basin Plan amendment for the control of agricultural subsurface drainage, adopted by the Central Valley Regional Board on December 8, 1988 under Resolution No. 88-195 and approved by the State Board on September 21, 1989 under Resolution No. 89-88 is incorporated into this Basin Plan revision.

6. Approves with the understanding that the Basin Plan amendment revising water quality objectives for pesticides and incorporating an implementation plan for the control of nonpoint source discharges of pesticides adopted by the Central Valley Regional Board on January 26, 1990 under Resolution No. 90-028 and approved by the State Board on February 15, 1990 under Resolution No. 90-20 is incorporated into this Basin Plan revision.

7. Requests the Central Valley Regional Board to correct all typographical errors during the printing process.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a policy duly and regularly adopted at a meeting of the State Water Resources Control Board held on March 22, 1990.

Maureen Marche'
Administrative Assistant to the Board

# TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

# FOREWORD TO THE SECOND EDITION

The preparation of water quality control plans, i.e., basin plans, is supported by the Federal Clean Water Act and required by the State's Porter-Cologne Water Quality Control Act. Section 303 of the federal law requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." State law defines water quality control plans to consist "...of a designation or establishment for the waters within a specified area of: (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation needed for achieving water quality objectives."[1/] State law also requires that basin plans conform to the policies set forth in the Water Code beginning with Section 13000 and any State policy for water quality control. In California, each of the nine Regional Boards has at least one basin plan. Since beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the basin plans are regulatory references for meeting the State and federal requirements for water quality control in California.[2/]

This revision is the first rewriting of the text of the Central Valley Regional Water Quality Control Board's Basin Plan for the northern portion of the Region. The northern portion includes three hydrologic sub-basins which are referred to as 5A (the Sacramento River Basin), 5B (the Sacramento-San Joaquin Delta Basin), and 5C (the San Joaquin River Basin). (The southernmost hydrologic basin in the Region is 5D, the Tulare Lake Basin, which is covered by the Central Valley Regional Board's other Basin Plan prepared by the Fresno office.)

The first edition of the Basin Plan for 5A, 5B, and 5C was adopted by the Regional Board on 25 July 1975 and approved by the State Board on 21 August 1975. U.S. Environmental Protection Agency (*EPA*) approval followed in June 1976.

This second edition of the Central Valley Board's Water Quality Control Plan Report incorporates all the changes or amendments which were adopted and approved after the first edition's publication. The chapters of the 1975 Basin Plan which have been affected by this revision are Present and Potential Beneficial Uses (Chapter 2 in the old plan, Chapter II in this edition), Water Quality Objectives (Chapter 4 in the old plan, Chapter III in this edition), Implementation Plan (Chapter 5 in the old plan, Chapter IV in this edition), and Surveillance and Monitoring (Chapter 7 of the old plan, Chapter V in this edition).

## BASIN DESCRIPTION

Basin boundaries and key features are identified in Figure I-1. Geographic, climatic, geologic, and hydrologic characteristics are presented in Table I-1 to facilitate comparisons between basins.

The Sacramento River, Sacramento-San Joaquin Delta, and San Joaquin River basins are among the more important agricultural areas of the world. They occupy about one-fourth of the total area of the State and contain over 30 percent of the State's irrigable land. These basins also have extensive forest, mineral, and recreational resources.

The basins are bound by the crests of the Sierra Nevada on the east and the Coast Range and Klamath Mountains on the west. San Francisco Bay provides the only outlet to the ocean. The basins extend some 400 miles from the California- Oregon border southward to the headwaters of the San Joaquin River.

### Sacramento River Basin

The Sacramento River Basin includes the entire Sacramento River drainage upstream from the I Street Bridge in the City of Sacramento. It also includes the closed basin of Goose Lake and the drainage sub-basins of Cache and Putah Creeks.

The basin encompasses about 26,500 square miles within California. The principal streams are the Sacramento River and its larger tributaries: the Pit, Feather, Yuba, Bear, and American Rivers to the east, and Cottonwood, Stony, Cache, and Putah Creeks to the west. There are more than 400 square miles of water area in the basin.

### Sacramento-San Joaquin Delta Basin

The Sacramento-San Joaquin Delta Basin extends from the headwaters of the Mokelumne River westward to the confluence of the Sacramento and San Joaquin Rivers, a distance of about 120 miles. It extends south about 60 miles from the City of Sacramento to the community of Vernalis on the San Joaquin River. The total area encompasses 4,950 square miles, including about 90 square miles of water area.

The principal streams in the basin are the lower reaches of the Sacramento and San Joaquin Rivers and the many interconnected channels in the Delta. Other important streams are the Calaveras, Mokelumne, and Consumnes Rivers, which drain a significant portion of the western slopes of the Sierra Nevada. The largest of the streams in the western part of the basin are Corral Hollow, Marsh, and Ulatis Creeks. They all have their headwaters in the Coast Range.

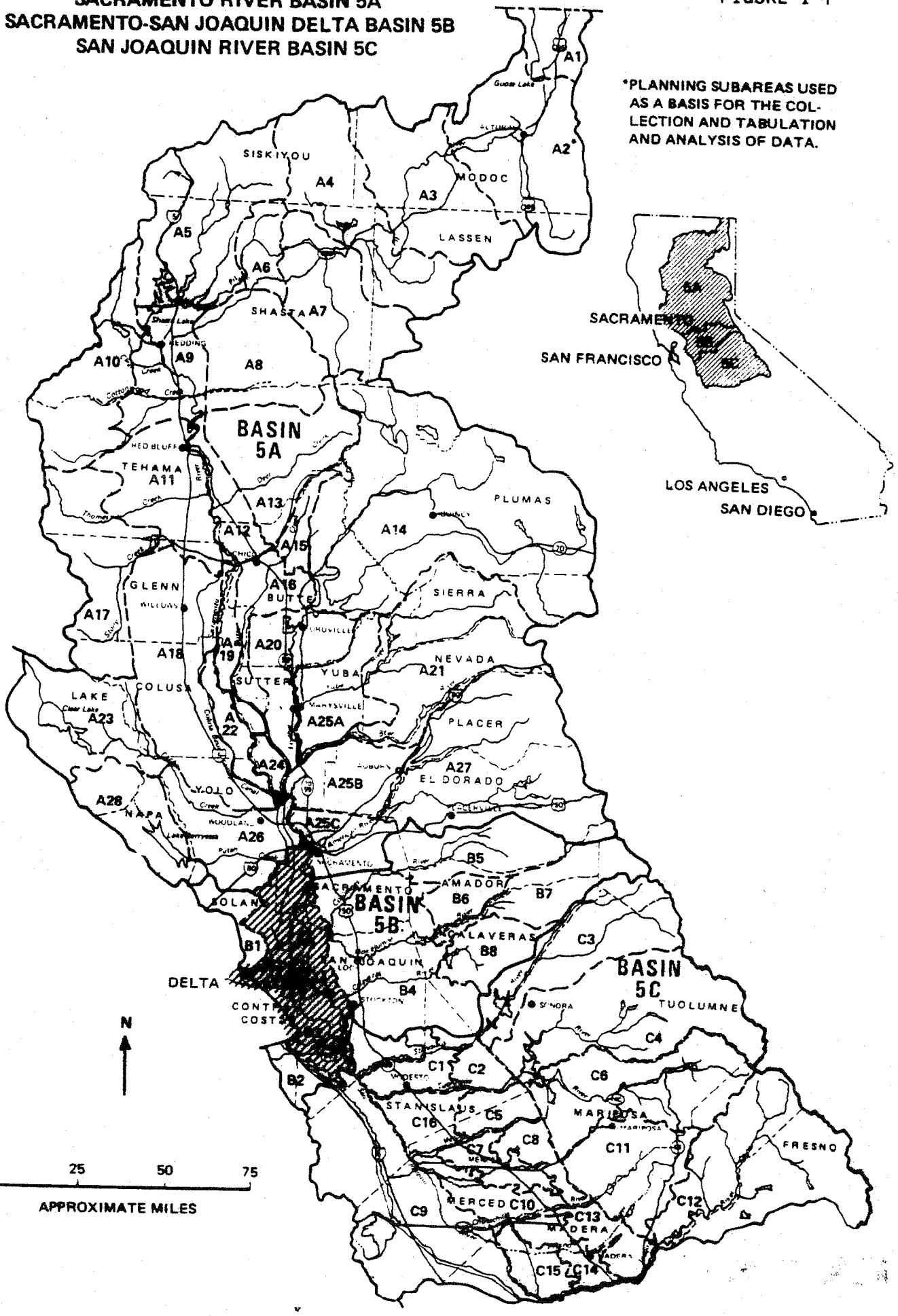
### San Joaquin River Basin

The San Joaquin River Basin extends westerly from the crest of the Sierra Nevada to the crest of the Coast Range, and southerly from the Sacramento-San Joaquin Delta to the drainage divide between the San Joaquin and Kings Rivers. The basin encompasses over 11,000 square miles, including about 100 square miles of water area.

The principal streams are the San Joaquin River and the larger of its tributaries: the Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. Prominent creeks include Bear, Owens, and Mariposa Creeks on the east; Los Banos, Orestimba, and Del Puerto Creeks on the west.

# LOCATION MAP
# SACRAMENTO RIVER BASIN 5A
# SACRAMENTO-SAN JOAQUIN DELTA BASIN 5B
# SAN JOAQUIN RIVER BASIN 5C

FIGURE I-1



# TABLE I-1

## PHYSICAL AND HYDROLOGIC CHARACTERISTICS

| Basin | Area | General Description | Climate | Geographical Boundaries | Topography | Geology/Soils | Surface Waters | Surface Water Development | Groundwaters |
|---|---|---|---|---|---|---|---|---|---|
| 5A Sacramento River Basin | Total 27,215 sq mi (720 sq mi in Oregon)<br>Land 26,781 sq mi<br>Water 434 sq mi | Study area lies in Central Valley Basin, an important agricultural, mineral, and recreational resource. Basin ringed by Sierra Nevada and Cascades to the east, Coast ranges and Klamath Mountains to the west, Tehachapi Mountains to the south, San Francisco Bay provides the only outlet to the ocean. Valley floor extends 450 miles in north-south direction, width averages 50 miles. Valley floor is mostly flat plain below 400 feet, sloping toward SF Bay. Central Valley Basin includes 4 hydrologic units, northern 3 constitute the study area: Sacramento River, Sacramento San Joaquin Delta, and San Joaquin River Basins | Valley: Two-season climate with hot summers, mild winters. Light precipitation decreasing toward the south. Average temperature ranges from 44°F (January) to 80°F (July). Frostfree 7 to 8 month growing season, with mean seasonal precipitation of 23 in.<br>Mountains: Elevations above 5000 ft experience heavy winter snowfall and mild summers. Average temperature ranges from 24°F (January) to 68°F (July). | Cascade Range and Klamath Mountains to the north; American River and Putah Creek basins to the south; Sierra Nevada crests to the east, North Coast Range crests to the west. | Valley: Width ranges from 5 mi in the north to 45 mi in the south. 34% of the basin is valley floor, including low hills, alluvial plains and fans, flood basins, and natural levees. Valley floor elevation ranges from sea level in the south to 300 ft in the northern foothills.<br>Mountains: Mt. Shasta, 14,161 ft in the north; Sierra Nevada crests range from 8000 to 10,000 ft in the east; Coast Range crests 2000 to 8000 ft in the west. | Sacramento Valley occupies part of the Great Structural Trough between the Sierra Nevada and the Coast Range. Valley is underlain by sedimentary material of marine origin and sediment carried from surrounding mountains by the Sacramento River System. Coast Range is complex, folded, and faulted, subject to excessive erosion. Sierra region is mainly crystalline, older, and resistant to erosion. | The principal stream is the Sacramento River. Also important are the larger of its tributaries, including McCloud, Pit, Feather, Yuba, Bear, and American Rivers, Battle and Mill Creeks. | Surface waters are extensively developed. Surface water storage exceeds 10.5 million ac ft in Berryessa, Folsom, Oroville, and Shasta Lakes. Developed supplies exceed forseeable demands in the southwestern area as far as 2020. | Groundwater is acquired from 21 principal sources, a majority of these underlying Sacramento Valley. |
| 5B Sacramento San Joaquin Delta Basin | Total 4,947 sq mi<br>Land 4,858 sq mi<br>Water 89 sq mi | | Valley: Hot, dry summers; cool, wet winters. Precipitation increases to the east. Average Annual Precipitation: 15 in. in Delta, 55+ in. at extreme elevation. Average January temperature 45°F, average July temperature 74°F.<br>Mountains: Moderate summers, cold winters on foothills. High Sierras experience long, severe winters with heavy snowfalls. Average temperature ranges from 27°F (January) to 62°F (July). | Sierra Nevada crest to the east; Coast Range crests to the Southwest; Sacramento River Basin boundary to the north. | Valley: About 50% of the basin is valley floor, which is mainly flat tule lands and delta area. Average delta elevation is sea level; elevation increases to the east.<br>Mountains: Low rolling foothills ascend to the rocky Sierra Nevada, Mokelumne Peak of 9,371 ft. | Basin filled with sedimentary materials. Sierra Nevada is block-formed wedge which dips below valley to the Coast Range.<br>Unconsolidated alluvium is chief groundwater source.<br>Sierra Nevada is old volcanic rock and sediment of marine origin. | Principal streams are lower Sacramento and San Joaquin Rivers and the larger of their tributaries, including Cosumnes, Mokelumne, and Calaveras Rivers.<br>Delta contains about 700 mi tidal waterways.<br>Annual runoff is about 1.4 million ac ft. | Surface waters are extensively developed.<br>There are about 50 reservoirs in the region, with storage capacity of about 1.5 million ac ft. | Principal groundwater source is northern part of San Joaquin-Tulare Valley Aquifer System. |
| 5C San Joaquin River Basin | Total 11,081 sq mi<br>Land 10,964 sq mi<br>Water 97 sq mi | | Valley: Warm, two season climate. 90% of total rainfall occurs between November and March. Rainfall decreases to the south. Average January temperature is 44°F, average July temperature 78°F.<br>Average Annual Precipitation: 25 in.<br>Mountains: Short, mild summers; cold, long winters. Heavy snowfall at elevations above 5000 ft. Precipitation increases with elevation, averaging 28 in. to 38 in. in foothills and mountains, respectively. Average temperature ranges from 22°F (January) to 80°F (July). | Sierra Nevada crest to the east; Coast Range crests to the west; San Joaquin River to the south. | Valley: About 30% of the basin is valley floor, 100 mi wide and 120 miles long, lying between Coast Range and Sierra Nevada.<br>Mountains: Sierra Nevada often reaches 10,000 ft; in many places 13,480 ft. Coast Range in the west is lower, about 500 to 4000 ft, with highest elevation 5000 ft. | The Sierra Nevada, Coast Range, and Central Valley contain mainly metamorphic and igneous rocks. Non-waterbearing crystalline rock predominates. Coast Range is made of sandstone and shale. Valley floor is filled with non-marine sediments. | The principal streams are the San Joaquin River and the larger of its tributaries, including Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers and Bear, Owens, and Mariposa Creeks on the east; and Panoche, Los Banos, San Luis, Orestimba, and Del Puerto Creeks on the west. | Surface waters extensively developed, and serve about two thirds of the basin. Nearly 3 million ac ft surface water storage. | Principal source is the San Joaquin-Tulare Valley Aquifer System. |

# II. PRESENT AND POTENTIAL BENEFICIAL USES

Beneficial uses are critical to water quality management in California. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) "...domestic; municipal; agricultural and industrial supply; power generation; recreation; esthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves."[3] Protection and enhancement of present and potential beneficial uses are primary goals of water quality planning.

Significant points concerning the concept of beneficial uses are:

1. All water quality problems can be stated in terms of whether there is water of sufficient quantity or quality to protect or enhance beneficial uses.

2. Beneficial uses do not include all of the reasonable uses of water. For example, disposal of wastewaters is not included as a beneficial use. This is not to say that disposal of wastewaters is a prohibited use of waters of the state; it is merely a use which cannot be satisfied to the detriment of beneficial uses. Similarly, the use of water for the dilution of salts is not a beneficial use although it may, in some cases, be a reasonable and desirable use of water.

3. The protection and enhancement of beneficial uses require that certain quality and quantity objectives be met for surface and ground waters.

4. Fish, plants, and other wildlife, as well as humans, use water beneficially.

Existing and potential beneficial uses which currently apply to surface and ground waters of the basins are presented in Figures and Tables II-1 and II-2. NOTE: Water Bodies within the basins that do not have beneficial uses designated in Tables II-1 and II-2 are assigned MUN designations in accordance with the provisions of State Water Resources Control Board Resolution No. 88-63 (Appendix Item 8) which is, by reference, a part of this Basin Plan. These MUN designations in no way affect the presence or absence of other beneficial use designations in these water bodies.

Beneficial use designation (and water quality objectives, see Chapter III) must be reviewed at least once during each three-year period for the purpose of modification as appropriate.[4]

The beneficial uses, and abbreviations, listed below are standard basin plan designations.

**Municipal and Domestic Supply (MUN)** - includes usual uses in community or military water systems and domestic uses from individual water supply systems.

**Agricultural Supply (AGR)** - includes crop, orchard, and pasture irrigation, stock watering, support of vegetation for range grazing, and all uses in support of farming and ranching operations.

**Industrial Service Supply (IND)** - includes uses which do not depend primarily on water quality such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil-well repressurization.

**Industrial Process Supply (PROC)** - includes process water supply and all uses related to the manufacturing of products.

**Ground Water Recharge (GWR)** - includes natural or artificial recharge for future extraction for beneficial uses and to maintain salt balance or halt saltwater intrusion into freshwater aquifers.

**Freshwater Replenishment (FRSH)** - provides a source of fresh water for replenishment of inland lakes and streams of varying salinities.

**Navigation (NAV)** - includes commercial and naval shipping.

**Hydroelectric Power Generation (POW)** - is that supply used for hydropower generation.

**Water-Contact Recreation (REC 1)** - includes all recreational uses involving actual body contact with water, such as swimming, wading, waterskiing, surfing, sport fishing, uses in therapeutic spas, and

other uses where ingestion of water is reasonably possible.

**Nonwater-Contact Recreation (REC 2)** - covers recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tidepool and marine life study, hunting and aesthetic enjoyment in conjunction with the above activities as well as sightseeing.

**Warm Freshwater Habitat (WARM)** - provides a warm water habitat to sustain aquatic resources associated with a warm water environment.

**Cold Freshwater Habitat (COLD)** - provides a cold water habitat to sustain aquatic resources associated with a cold water environment.

**Wildlife Habitat (WILD)** - provides a water supply and vegetative habitat for the maintenance of wildlife.

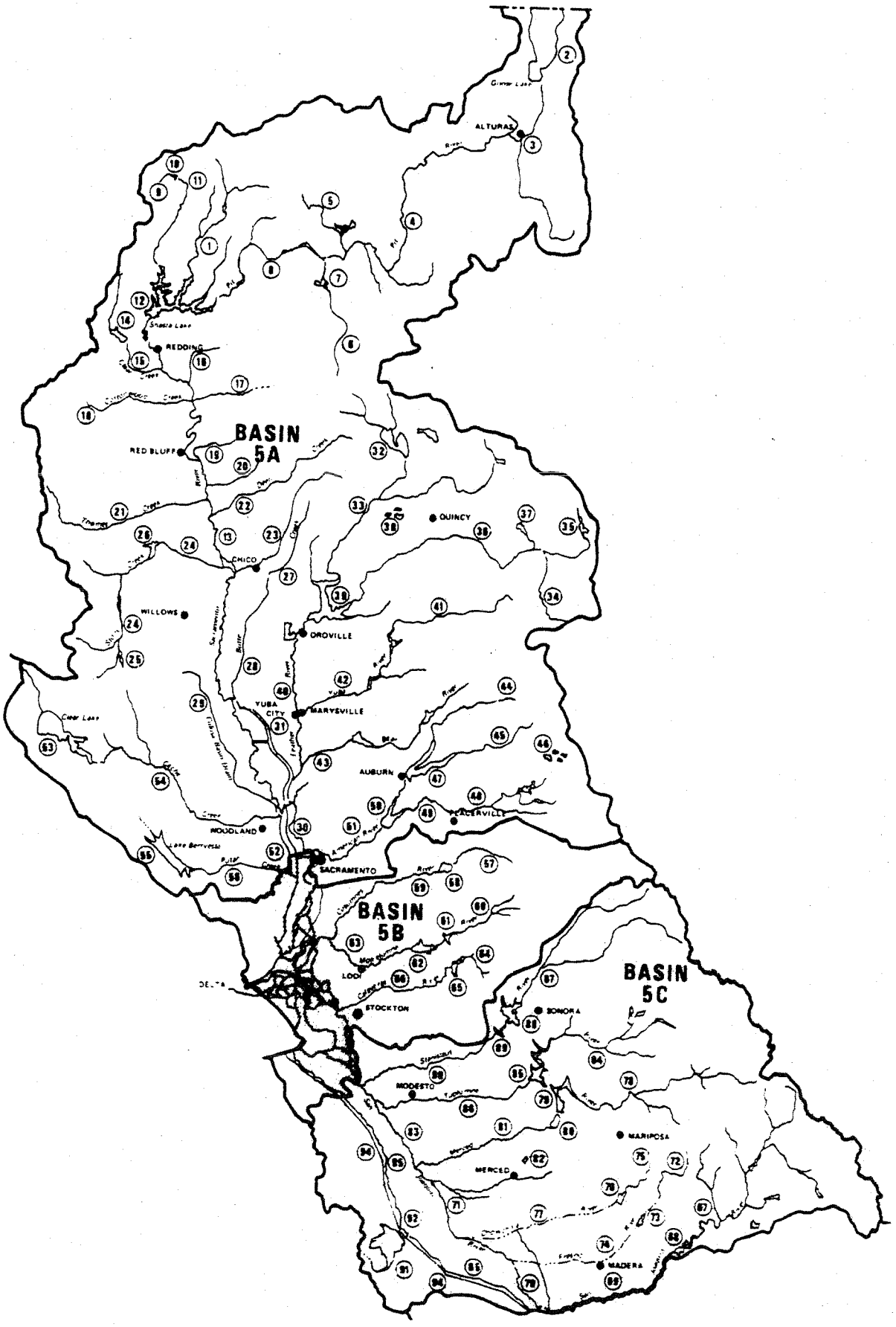
**Preservation of Rare and Endangered Species (RARE)** - provides an aquatic habitat necessary, at least in part, for the survival of certain species established as being rare and endangered species.

**Fish Migration (MIGR)** - provides a migration route and temporary aquatic environment for anadromous or other fish species.

**Fish Spawning (SPWN)** - provides a high-quality aquatic habitat especially suitable for fish spawning.

FIGURE II-1

## SURFACE WATER BODIES AND BENEFICIAL USES



# SURFACE WATER BODIES AND BENEFICIAL USES

| | SURFACE WATER BODIES[1] | MUN | AGRI-CULTURE | | INDUSTRY | | | RECREATION | | | FRESHWATER HABITAT[3] | | MIGRATION | | SPAWNING | | WILD | NAV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AGR | | PROC | IND | POW | REC 1 | | REC 2 | WARM | COLD | MIGR | | SPWN | | | |
| | | MUNICIPAL AND DOMESTIC SUPPLY | IRRIGATION | STOCK WATERING | PROCESS | SERVICE SUPPLY | POWER | CONTACT | CANOEING AND RAFTING[2] | OTHER NONCONTACT | WARM | COLD | WARM[4] | COLD[5] | WARM[4] | COLD[5] | WILDLIFE HABITAT | NAVIGATION |
| 1 | McCLOUD RIVER | ● | ● | ● | | | ● | ● | ○ | ● | | ● | | | | ● | ● | |
| 2 | GOOSE LAKE | | ● | ● | | | | ● | | ● | ● | ● | | | | | ● | |
| | PIT RIVER | | | | | | | | | | | | | | | | | |
| 3 | NORTH FORK, SOUTH FORK, PIT RIVER | ● | ● | ● | | | | ● | ○ | ● | ● | ● | | | ● | ● | ● | |
| 4 | CONFLUENCE OF FORKS TO HAT CREEK | ● | ● | ● | | | ● | ● | ● | ● | ● | ● | | | ● | | ● | |
| 5 | FALL RIVER | ● | ● | ● | | | ● | ● | | ● | ● | ● | | | | | ● | |
| 6 | HAT CREEK | | ● | | | | ● | ● | | ● | ● | ● | | | | ● | ● | |
| 7 | BAUM LAKE | | | | | | ● | ● | | ● | | ● | | | | ○ | ● | |
| 8 | MOUTH OF HAT CREEK TO SHASTA LAKE | ● | ● | ● | | | ● | ● | ● | ● | ○ | ● | | | ● | ● | ● | |
| | SACRAMENTO RIVER | | | | | | | | | | | | | | | | | |
| 9 | SOURCE TO BOX CANYON RESERVOIR | | ● | ● | | | | ● | | ● | | ● | | | | | ● | |
| 10 | LAKE SISKIYOU | | | | | | | ● | | ● | ● | ● | | | | ○ | ● | |
| 11 | BOX CANYON DAM TO SHASTA LAKE | | ● | ● | | | | ● | ● | ● | ● | ● | | | | ● | ● | |
| 12 | SHASTA LAKE | ● | ● | | | | | ● | | ● | | ● | | | ● | ● | ● | |
| 13 | SHASTA DAM TO COLUSA BASIN DRAIN | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 14 | WHISKEYTOWN RESERVOIR | ● | ● | ● | | | ● | ● | | ● | ● | ● | | | ● | | ● | |
| 15 | CLEAR CREEK BELOW WHISKEYTOWN RESERVOIR | ● | ● | ● | | | | ● | ● | ● | ● | ● | | ● | ● | ● | ● | |
| 16 | COW CREEK | ○ | ● | ● | | | ● | ● | ○ | ● | | ● | | ● | ● | ● | ● | |
| 17 | BATTLE CREEK | | ● | ● | | | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | |
| 18 | COTTONWOOD CREEK | ● | ● | ● | ○ | ○ | ○ | ● | ● | ● | ● | ● | | ● | ● | ● | ● | |
| 19 | ANTELOPE CREEK | ● | ● | ● | | | | ● | | ● | ● | ● | | ● | ● | ● | ● | |
| 20 | MILL CREEK | ● | ● | ● | | | | ● | | ● | ● | ● | | ● | ● | ● | ● | |
| 21 | THOMES CREEK | | ● | ● | | | ○ | ● | | ● | ● | ● | | ● | ● | ● | ● | |
| 22 | DEER CREEK | ● | ● | ● | | | | ● | ● | ● | ● | ● | | ● | ● | ● | ● | |
| 23 | BIG CHICO CREEK | | ● | ● | | | | ● | ● | ● | ● | ● | | ● | ● | ● | ● | |
| 24 | STONY CREEK | | ● | ● | | | | ● | ● | ● | ● | ○ | | ● | ● | ● | ● | |
| 25 | EAST PARK RESERVOIR | | | | | | | ● | | ● | ● | ○ | | | ● | | ● | |
| 26 | BLACK BUTTE RESERVOIR | | ● | ● | | | | ● | | ● | ● | | | | ● | | ● | |
| | BUTTE CREEK | | | | | | | | | | | | | | | | | |
| 27 | SOURCES TO CHICO | ● | ● | ● | | | ● | ● | | | ● | ● | | ● | ● | ● | ● | |
| 28 | BELOW CHICO, INCLUDING BUTTE SLOUGH | | ● | ● | | | | ● | ● | | ● | ● | | ● | ● | | ● | |
| 29 | COLUSA BASIN DRAIN | | ● | ● | | | | ● | ● | | ● | ○ | ● | | ● | | | |
| 30 | COLUSA BASIN DRAIN TO EYE STREET BRIDGE | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 31 | SUTTER BYPASS | | ● | | | | | ● | | | ● | | | ● | | ● | ● | |
| | FEATHER RIVER | | | | | | | | | | | | | | | | | |
| 32 | LAKE ALMANOR | | | | | | ● | ● | | | ● | ● | | | | | ● | |
| 33 | NORTH FORK, FEATHER RIVER | ● | | | | | ● | ● | ● | ● | | ● | | | | ● | ● | |
| | MIDDLE FORK, FEATHER RIVER | | | | | | | | | | | | | | | | | |
| 34 | SOURCE TO LITTLE LAST CHANCE CREEK | | ● | ● | | | | ● | ● | ● | ● | ● | | | | ● | ● | |
| 35 | FRENCHMAN RESERVOIR | | | | | | | ● | | ● | ○ | ● | | | | ● | ● | |
| 36 | LITTLE LAST CHANCE CREEK TO LAKE OROVILLE | ● | | | | | | ● | ● | ● | ● | ● | | | | ● | ● | |
| 37 | LAKE DAVIS | | | | | | | ● | | ● | ○ | ● | | | | ● | ● | |
| 38 | LAKES BASIN LAKES | | | | | | | ● | | ● | | ● | | | | ● | ● | |
| 39 | LAKE OROVILLE | ● | ● | | | | ● | ● | | ● | ● | ● | | | ● | ● | ● | |
| 40 | FISH BARRIER DAM TO SACRAMENTO RIVER | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| | YUBA RIVER | | | | | | | | | | | | | | | | | |
| 41 | SOURCES TO ENGLEBRIGHT RESERVOIR | ● | ● | ● | | | ● | ● | ● | ● | | ● | | | | ● | ● | |
| 42 | ENGLEBRIGHT DAM TO FEATHER RIVER | | ● | ● | | | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | |
| 43 | BEAR RIVER | ● | ● | ● | | | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ● | |
| | AMERICAN RIVER | | | | | | | | | | | | | | | | | |
| 44 | NORTH FORK, SOURCE TO FOLSOM LAKE | ● | ● | | | | | ● | ● | ● | ○ | ● | | | | ● | ● | |
| 45 | MIDDLE FORK, SOURCE TO FOLSOM LAKE | ● | ● | ● | | | ● | ● | ● | ● | ○ | ● | | | | ● | ● | |
| 46 | DESOLATION VALLEY LAKES | | | | | | | ● | | ● | | ● | | | | ● | ● | |
| 47 | AUBURN RESERVOIR (UNDER CONSTRUCTION) | ○ | ○ | | | | ○ | ○ | | ○ | | ○ | | | | ○ | ○ | |
| | SOUTH FORK | | | | | | | | | | | | | | | | | |
| 48 | SOURCE TO PLACERVILLE | ● | | | | | ● | ● | ● | ● | ○ | ● | | | | ● | ● | |
| 49 | PLACERVILLE TO FOLSOM LAKE | ● | ● | | | | ● | ● | ● | ● | ● | ● | | | | | ● | |
| 50 | FOLSOM LAKE | ● | ● | | | ○ | ● | ● | | ● | ● | ● | | | ● | | ● | |
| 51 | FOLSOM DAM TO SACRAMENTO RIVER | ● | ● | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |

LEGEND

● EXISTING BENEFICIAL USES

○ POTENTIAL BENEFICIAL USES

NOTE:

Surface waters with the beneficial uses of Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), and Preservation of Rare and Endangered Species (RARE) have not been identified in this plan. Surface waters of Basins 5A, 5B, and 5C falling within these beneficial use categories will be identified in the future as part of the continuous planning process to be conducted by the State Water Resources Control Board.

# SURFACE WATER BODIES AND BENEFICIAL USES

| | SURFACE WATER BODIES[1] | MUN | AGRI-CULTURE AGR | | INDUSTRY PROC | IND | POW | RECREATION REC 1 | | REC 2 | FRESHWATER HABITAT[3] WARM | COLD | MIGRATION MIGR | | SPAWNING SPWN | | WILD | NAV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MUNICIPAL AND DOMESTIC SUPPLY | IRRIGATION | STOCK WATERING | PROCESS | SERVICE SUPPLY | POWER | CONTACT | CANOEING AND RAFTING[2] | OTHER NONCONTACT | WARM | COLD | WARM[4] | COLD[5] | WARM[4] | COLD[5] | WILDLIFE HABITAT | NAVIGATION |
| 52 | YOLO BYPASS | | • | • | | | | • | | • | • | ○ | • | • | • | | • | |
| | CACHE CREEK | | | | | | | | | | | | | | | | | |
| 53 | CLEAR LAKE | • | • | • | | | | • | | • | • | ○ | | | • | | • | |
| 54 | CLEAR LAKE TO YOLO BYPASS | | • | • | • | • | | • | • | • | • | ○ | | | • | • | • | |
| | PUTAH CREEK | | | | | | | | | | | | | | | | | |
| 55 | LAKE BERRYESSA | • | • | • | | | ○ | • | | • | • | • | | | • | | • | |
| 56 | LAKE BERRYESSA TO YOLO BYPASS | • | • | • | | | | • | • | • | • | ○ | | | • | | • | |
| | OTHER LAKES AND RESERVOIRS IN BASIN 5A[7] | • | • | • | • | | • | • | | • | • | • | | | | • | • | |
| | COSUMNES RIVER | | | | | | | | | | | | | | | | | |
| 57 | SOURCES TO NASHVILLE RESERVOIR (PROPOSED) | • | • | | | | | • | | • | | • | | | | • | • | |
| 58 | NASHVILLE RESERVOIR (PROPOSED) | ○ | | | | | ○ | ○ | | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | |
| 59 | PROPOSED NASHVILLE RESERVOIR TO DELTA | • | • | • | | | | • | • | • | • | • | • | • | • | • | • | |
| | MOKELUMNE RIVER | | | | | | | | | | | | | | | | | |
| 60 | SOURCES TO PARDEE RESERVOIR | • | | | | | • | • | • | • | • | • | • | | • | • | • | |
| 61 | PARDEE RESERVOIR[8] | • | | | | | • | • | | • | • | • | | | • | • | • | |
| 62 | CAMANCHE RESERVOIR | • | • | • | | | | • | | • | • | • | • | | • | • | • | |
| 63 | CAMANCHE RESERVOIR TO DELTA | | • | • | | | | • | • | • | • | • | • | • | • | • | • | |
| | CALAVERAS RIVER | | | | | | | | | | | | | | | | | |
| 64 | SOURCE TO NEW HOGAN RESERVOIR | | | | | | | • | • | • | • | • | • | | • | • | • | |
| 65 | NEW HOGAN RESERVOIR | | | | | | | • | | • | • | • | • | | • | • | • | |
| 66 | NEW HOGAN RESERVOIR TO DELTA | • | • | • | ○ | ○ | | • | • | • | • | • | • | • | • | • | • | |
| | OTHER LAKES AND RESERVOIRS IN BASIN 5B[7] | • | • | • | • | | • | • | | • | • | • | | | | • | • | |
| | SAN JOAQUIN RIVER | | | | | | | | | | | | | | | | | |
| 67 | SOURCES TO MILLERTON LAKE | • | • | • | | | • | • | • | • | • | • | | | | | • | |
| 68 | MILLERTON LAKE | ○ | • | • | | | | • | | • | • | ○ | | | | | • | |
| 69 | FRIANT DAM TO MENDOTA POOL | • | • | • | • | | | • | • | • | • | • | • | • | • | ○ | • | |
| 70 | MENDOTA DAM TO SACK DAM | ○ | • | • | • | | | • | • | • | • | | • | • | • | ○ | • | |
| 71 | SACK DAM TO MOUTH OF MERCED RIVER | ○ | • | • | • | | | • | • | • | • | | • | • | • | ○ | • | |
| | FRESNO RIVER | | | | | | | | | | | | | | | | | |
| 72 | SOURCE TO HIDDEN RESERVOIR A | • | • | • | | | | • | | • | • | • | | | | | • | |
| 73 | HIDDEN RESERVOIR (PROPOSED) A | • | | • | | | | • | | • | • | | | | | | • | |
| 74 | HIDDEN RESERVOIR TO SAN JOAQUIN RIVER | ○ | • | • | | | | • | ○ | • | • | | | | | | • | |
| | CHOWCHILLA RIVER | | | | | | | | | | | | | | | | | |
| 75 | SOURCE TO BUCHANAN RESERVOIR B | | | | | | | • | | • | • | • | | | | | • | |
| 76 | BUCHANAN RESERVOIR B | • | • | • | | | | • | | • | • | | | | | | • | |
| 77 | BUCHANAN DAM TO SAN JOAQUIN RIVER | ○ | • | | • | | | • | ○ | • | • | | | | | | • | |
| | MERCED RIVER | | | | | | | | | | | | | | | | | |
| 78 | SOURCE TO McCLURE LAKE | ○ | • | | | | • | • | • | • | • | • | | | | | • | |
| 79 | McCLURE LAKE | ○ | • | | | | • | • | | • | • | • | | | | | • | |
| 80 | McSWAIN RESERVOIR | ○ | • | | | | • | • | | • | • | • | | | | | • | |
| 81 | McSWAIN RESERVOIR TO SAN JOAQUIN RIVER | • | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| 82 | YOSEMITE LAKE | | | | | | | • | | • | • | • | | | | | • | |
| 83 | MOUTH OF MERCED RIVER TO VERNALIS | ○ | • | • | • | | | • | • | • | • | | • | • | • | | • | |
| | TUOLUMNE RIVER | | | | | | | | | | | | | | | | | |
| 84 | SOURCE TO DON PEDRO RESERVOIR | • | • | • | | | • | • | • | • | • | • | | | | | • | |
| 85 | DON PEDRO RESERVOIR | ○ | | | | | • | • | | • | • | • | | | | | • | |
| 86 | DON PEDRO DAM TO SAN JOAQUIN RIVER | ○ | • | • | | | | • | • | • | • | • | | • | • | • | • | |
| | STANISLAUS RIVER | | | | | | | | | | | | | | | | | |
| 87 | SOURCE TO NEW MELONES RESERVOIR (PROPOSED) | • | • | • | | | • | • | • | • | • | • | | | | | • | |
| 88 | NEW MELONES RESERVOIR | • | • | • | | | • | • | | • | | • | | | | | • | |
| 89 | TULLOCH RESERVOIR | | • | • | | | • | • | | • | • | • | | | | | • | |
| 90 | GOODWIN DAM TO SAN JOAQUIN RIVER | ○ | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | |
| 91 | SAN LUIS RESERVOIR | • | • | • | | • | • | • | | • | • | | | | | | • | |
| 92 | O'NEILL RESERVOIR | • | • | • | | | | • | | • | • | | | | | | | |
| 93 | OTHER LAKES AND RESERVOIRS IN BASIN 5C[7] | • | | | | | • | • | | • | • | • | | | | • | • | |
| 94 | CALIFORNIA AQUEDUCT | • | • | • | • | • | • | • | | • | | | | | | | • | |
| 95 | DELTA-MENDOTA CANAL | • | • | • | | | | • | | • | • | | | | | | • | |
| (Δ) | SACRAMENTO-SAN JOAQUIN DELTA[9] (10) | • | • | • | • | • | | • | | • | • | • | • | • | • | | • | • |

(1) Those streams not listed have the same beneficial uses as the streams lakes reservoirs to which they are tributary.

(2) Shown for streams and rivers only with the implication that certain flows are required for this beneficial use.

(3) Resident does not include anadromous. Any Segments with both COLD and WARM beneficial use designations will be considered COLD water bodies for the application of water quality objectives.

(4) Striped bass, sturgeon, and shad.

(5) Salmon and steelhead.

(6) As a primary beneficial use

(7) The indicated beneficial uses are to be protected for all waters except in specific cases where evidence indicates the appropriateness of additional or alternative beneficial use designations.

(8) Sport fishing is the only recreation activity permitted.

(9) Beneficial uses vary throughout the Delta and will be evaluated on a case-by-case basis.

(10) Per State Board Resolution No. 90-28, Marsh Creek and Marsh Creek Reservoir in Contra Costa County are assigned the following beneficial uses: REC1 and REC2 (potential uses), WARM, WILD, and RARE.

A/ Hidden Reservoir =Eastman Lake
B/ Buchanan Reservoir =Hensley Lake

FIGURE II-2

## GROUNDWATER BODIES AND BENEFICIAL USES

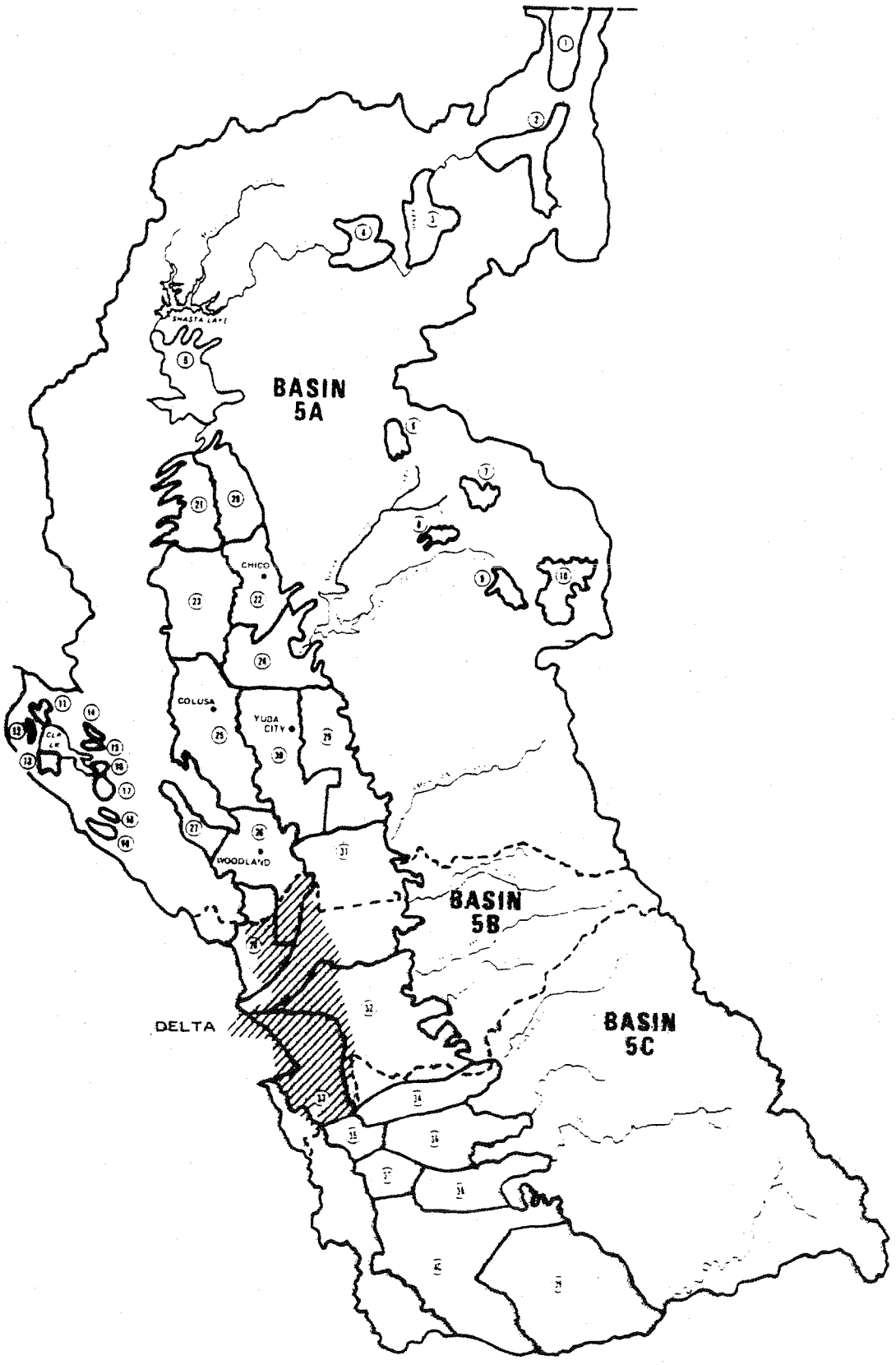


TABLE 11-2

## GROUND WATER BODIES AND BENEFICIAL USES

| | MUNICIPAL AND DOMESTIC | IRRIGATION | STOCK WATERING | PROCESS | SERVICE SUPPLY |
|---|---|---|---|---|---|
| 1. GOOSE LAKE VALLEY | ● | ● | ● | | |
| 2. ALTURAS BASIN | ● | ● | ● | | |
| 3. BIG VALLEY | ● | ● | ● | | |
| 4. FALL RIVER VALLEY | ● | ● | ● | | |
| 5. REDDING BASIN | ● | ● | ● | ● | |
| 6. LAKE ALMANOR VALLEY | ● | ● | | | |
| 7. INDIAN VALLEY | ● | ● | | | |
| 8. AMERICAN VALLEY | ● | ● | ● | | |
| 9. MOHAWK VALLEY | ● | ● | ● | | |
| 10. SIERRA VALLEY | ● | ● | ● | | |
| 11. UPPER LAKE VALLEY | ● | ● | ● | | |
| 12. SCOTT VALLEY | ● | ● | ● | | |
| 13. KELSEYVILLE VALLEY | ● | ● | ● | ● | |
| 14. LONG VALLEY | ● | ● | ● | | |
| 15. HIGH VALLEY | ● | ● | ● | | |
| 16. BURNS VALLEY | ● | ● | ● | | |
| 17. LOWER LAKE VALLEY | ● | ● | ● | | |
| 18. COYOTE VALLEY | ● | ● | ● | | |
| 19. COLLAYOMI VALLEY | ● | ● | ● | | |
| 20. EAST TEHAMA CO. & NW CORNER OF BUTTE CO. | ● | ● | ● | | |
| 21. TEHAMA CO. WEST OF SACRAMENTO RIVER | ● | ● | ● | | |
| 22. NORTH BUTTE CO. | ● | ● | ● | | |
| 23. GLENN CO. | ● | ● | ● | | |
| 24. SOUTH BUTTE CO. | ● | ● | ● | | |
| 25. COLUSA CO. & NORTH YOLO CO. | ● | ● | ● | | |
| 26. SOUTH YOLO CO. | ● | ● | ● | ● | |
| 27. CAPAY VALLEY | ● | ● | ● | | |
| 28. SOLANO CO. | ● | ● | ● | ● | |
| 29. PLACER CO. & YUBA CO. | ● | ● | ● | ● | |
| 30. SUTTER CO. | ● | ● | ● | | |
| 31. SACRAMENTO CO. | ● | ● | ● | ● | ● |
| 32. SAN JOAQUIN CO. | ● | ● | ● | ● | ● |
| 33. CONTRA COSTA CO. | ● | ● | ● | ● | ● |
| 34. H* | ● | ● | ● | ● | ● |
| 35. I & G | ● | ● | ● | | |
| 36. F | ● | ● | ● | ● | |
| 37. E | ● | ● | ● | ● | |
| 38. D | ● | ● | ● | | |
| 39. A & B | ● | ● | ● | ● | ● |
| 40. C | ● | ● | ● | ● | |

*RECENT DWR DESIGNATION OF GROUNDWATER BODIES IN SAN JOAQUIN BASIN (31-37)

# III. WATER QUALITY OBJECTIVES

The Porter-Cologne Water Quality Control Act defines water quality objectives *(WQOs)* as "...the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area."[5/] It also requires the Regional Board to establish water quality objectives, while acknowledging that it is possible for water quality to be changed to some degree without unreasonably affecting beneficial uses. In establishing WQOs, the Regional Board must consider, among other things, the following factors:

- Past, present, and probable future beneficial uses;
- Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
- Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
- Economic considerations;
- The need for developing housing within the region.[5/]

The Federal Clean Water Act requires a state to submit for approval of the Administrator of the U.S. Environmental Protection Agency *(EPA)* all new or revised water quality standards which are established for surface and ocean waters. As noted earlier, California water quality standards consist of both beneficial uses (identified in Chapter II) and the WQOs based on those use.

There are **six important points** that apply to WQOs. **The first point** is that WQOs can be revised through the basin plan amendment process. As indicated previously, federal regulations call for each state to review its water quality standards at least every three years. These Triennial Reviews provide one opportunity to evaluate changing water quality objectives, because they begin with an identification of potential and actual water quality problems, i.e., beneficial use impairments. Since impairments may be associated with an exceedence of water quality objectives, the Regional Board uses the results of the Triennial Review to implement actions to assess, remedy, monitor, or otherwise address the impairments, as appropriate, in order to achieve objectives and protect beneficial uses. If a problem is found to occur because, for example, a WQO is too weak to protect beneficial uses, the Basin Plan should be amended to make the objective more stringent. (Better enforcement of the WQOs or adoption of certain policies or redirection of staff and resources may also be proper responses to water quality problems. See the Implementation chapter for further discussion.)

Changes to the objectives can also occur because of new scientific information on the effects of water contaminants. A major source of information is the EPA which develops data on the effects of chemical and other constituent concentrations on particular aquatic species and human health. Other information sources for data on protection of beneficial uses include the National Academy of Science which has published data on bioaccumulation and the federal Food and Drug Administration which has issued criteria for unacceptable levels of chemicals in fish and shellfish used for human consumption. The Regional Board may make use of those and other State agency information sources in assessing the need for new WQOs.

The **second point** is that objectives are to be achieved primarily through the establishment of waste discharge requirements (including permits). In setting these, the Regional Board considers the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate WQOs. It can then make a finding as to the beneficial uses to be protected within the area of influence of the discharge and establish waste discharge requirements to protect those uses and to meet water quality objectives. The objectives are intended to govern the levels of constituents and

characteristics in the main water mass unless otherwise designated. They may not apply at or in the immediate vicinity of effluent discharges, but at the edge of the *mixing zone* if areas of dilution or criteria for diffusion or dispersion are defined in the waste discharge specifications.

The **third point** is that achievement of the objectives depends on applying them to controllable water quality factors. *Controllable water quality factors* are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Board or the Regional Board, and that may be reasonably controlled. Controllable factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in exceedence of the WQOs.

The **fourth point** is that in cases where WQOs are formulated to preserve historic conditions, there may be insufficient data to determine completely the temporal and hydrologic variability representative of historic water quality. When violations of such objectives occur, the Regional Board judges the reasonableness of achieving those objectives through regulation of the controllable factors in the areas of concern.

The **fifth point** is that the State Board adopts policies and plans for water quality control which can specify WQOs or affect their implementation. Chief among the State Board's policies for water quality control is State Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California). It requires that wherever the existing quality of surface or ground waters is better than the quality of those waters established in a basin plan as objectives, the existing quality will be maintained unless as otherwise provided by Resolution No. 68-16 or any revisions thereto. This policy and others establish *general objectives*. The State Board's water quality control plans applicable to sub-basins 5A, 5B, and 5C are the Thermal Plan and the Delta Plan. The Thermal Plan and its WQOs are in the Appendix. The Delta Plan WQOs are listed as Table III-5. The State Board's plans and policies that the Basin Plan must conform to are addressed in Chapter IV, Implementation.

The **sixth point** is that WQOs may be in numerical or narrative form. The enumerated milligram-per-liter (mg/l) limit for copper is an example of a numerical objective; the objective for color is an example of a narrative form.

## WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS

The objectives below are presented by categories which, like the Beneficial Uses of Chapter II, were standardized for uniformity among the Regional Boards when basin planning was first underway. The WQOs apply to all surface waters in sub-basins 5A, 5B, and 5C including the Delta, or as noted. *(The boundaries of the Delta are identified in Figure III-1.)* The numbers in parentheses following specific water bodies are keyed to Figure II-1.

### Bacteria

In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.

For Folsom Lake (50), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 100/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 200/100 ml.

### Biostimulatory Substances

Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

### Chemical Constituents

Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15.

The limits described there will be reviewed on a case-by-case basis in order to assure protection of beneficial uses other than MUN, as appropriate. To the extent of any conflict with the above, the more stringent objective applies.

The chemical constituent objectives in Table III-1 apply to the water bodies specified.

---

**TABLE III-1**

**TRACE ELEMENT WATER QUALITY OBJECTIVES**

| CONSTITUENT | MAXIMUM CONCENTRATION (mg/l) | APPLICABLE WATER BODIES |
|---|---|---|
| Copper | 0.0056* | Sacramento River and its tributaries above State Hwy 32 bridge at Hamilton City. |
| Zinc | 0.016* | As noted above for Copper. |
| Cadmium | 0.00022* | As noted above for Copper. |
| Arsenic | 0.01 | Sacramento River from Keswick Dam to the I Street Bridge at City of Sacramento (13, 30); American River from Folsom Dam to the Sacramento River (51); Folsom Lake (50); and the Sacramento-San Joaquin Delta. |
| Barium | 0.1 | As noted above for Arsenic. |
| Copper | 0.01** | As noted above for Arsenic.** |
| Cyanide | 0.01 | As noted above for Arsenic. |
| Iron | 0.3 | As noted above for Arsenic. |
| Manganese | 0.05 | As noted above for Arsenic. |
| Silver | 0.01 | As noted above for Arsenic. |
| Zinc | 0.1** | As noted above for Arsenic.** |
| Selenium | 0.012<br>0.005 (monthly mean)<br>0.008 (monthly mean, critical year***) | San Joaquin River, mouth of the Merced River to Vernalis |
| Molybdenum | 0.015<br>0.010 (monthly mean) | San Joaquin River, mouth of the Merced River to Vernalis |

TABLE III-1 TRACE ELEMENT
WATER QUALITY OBJECTIVES (Continued)

| CONSTITUENT | MAXIMUM CONCENTRATION (mg/l) | APPLICABLE WATER BODIES |
|---|---|---|
| Boron | 2.0 (15 March through 15 September)<br>0.8 (monthly mean, 15 March through 15 September)<br><br>2.6 (16 September through 14 March)<br>1.0 (monthly mean, 16 September through 14 March)<br><br>1.3 (monthly mean, critical year***) | San Joaquin River, mouth of the Merced River to Vernalis |
| Selenium | 0.026****<br>0.010 (monthly mean)**** | Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River |
| Molybdenum | 0.050****<br>0.019 (monthly mean)**** | Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River |
| Boron | 5.8****<br>2.0 (monthly mean, 15 March through 15 September)**** | Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River |
| Selenium | 0.002 (monthly mean) | Any water supplies used for waterfowl habitat in the Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Area. |

* The effects of these concentrations were measured by exposing test organisms to dissolved aqueous solutions of 40 mg/l hardness that had been filtered through a 0.45 micron membrane filter. Where deviations from 40 mg/l of water hardness occur, the objectives, in mg/l, shall be determined using the following formulas:

$$Cu = e^{(0.905)(\ln \text{hardness}) - 1.612} \times 10^{-3}$$

$$Zn = e^{(0.830)(\ln \text{hardness}) - 0.289} \times 10^{-3}$$

$$Cd = e^{(1.160)(\ln \text{hardness}) - 5.777} \times 10^{-3}$$

** Does not apply to Sacramento River above State Hwy. 32 bridge at Hamilton City. See relevant objectives (*) above.

*** See Table IV-3 or as updated by the Delta Hearings.

**** An alternate set of objectives is proposed to go into effect if the plan to use the San Luis Drain is implemented. The alternate set of objectives provide for better water quality in Salt Slough and the San Joaquin River, Sack Dam to the mouth of Mud Slough (north) and a longer compliance period for Mud Slough (north) and the San Joaquin River, mouth of Mud Slough (north) to mouth of the Merced River.

## Color

Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.

## Dissolved Oxygen

The monthly median of the mean daily dissolved oxygen *(DO)* concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation. The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

Waters designated WARM 5.0 mg/l
Waters designated COLD 7.0 mg/l
Waters designated SPWN 7.0 mg/l

**DO--Special Cases in 5A, 5B, and 5C Other Than the Delta**

DO shall be equal to or greater than the amounts in Table III-2 for the water bodies specified. To the extent of any conflict with the above, the more stringent objective applies.

**TABLE III-2**
**SPECIFIC DISSOLVED OXYGEN WATER QUALITY OBJECTIVES**

| AMOUNT | TIME | PLACE |
|---|---|---|
| 9.0 mg/l* | 1 June to 31 August | Sacramento River from Keswick Dam to Hamilton City (13) |
| 7.0 mg/l | 1 June to 31 August | Sacramento River from Hamilton City to I Street Bridge (30 |
| 7.0 mg/l | all year | Lake Natoma (51) |
| 8.0 mg/l | 1 September to 31 May | Feather River from Fish Barrier Dam at Oroville to Honcut Creek (40) |
| 8.0 mg/l | all year | Merced River from Cressy to New Exchequer Dam (78) |
| 8.0 mg/l | 15 October to 15 June | Tuolumne River from Waterford to La Grange (86) |
| established seasonal levels | all year | Sacramento River from Keswick Dam to I Street Bridge (13,30) |

*When natural conditions lower dissolved oxygen below this level, the concentrations shall be maintained at or above 95 percent of saturation.

**Delta Waters**

In addition to the general objective previously described, the dissolved oxygen concentration for the Delta also shall not be reduced below:

7.0 mg/l in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; and 5.0 mg/l in all other Delta waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use.

## Floating Material

Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.

## Oil and Grease

Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

## pH

The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.

For Goose Lake (2), pH shall be less than 9.5 and greater than 7.5 at all times.

## Pesticides

--No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.

--Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.

--Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer.

--Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. Section 131.12.).

--Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.

--Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.

--Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 µg/l.

Where more than one objective may be applicable, the most stringent objective applies.

For the purposes of this objective, the term pesticide shall include (1) any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever, or (2) any spray adjuvant, or (3) any breakdown products of these materials that threaten beneficial uses. Note that discharges of "inert" ingredients included in pesticide formulations must comply with all applicable water quality objectives.

## Radioactivity

Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15.

## Salinity

**Electrical Conductivity and Total Dissolved Solids--Special Cases in 5A, 5B, and 5C Other Than the Delta**

The objectives for electrical conductivity and total dissolved solids in Table III-3 apply to the water bodies specified. To the extent of any conflict with the general Chemical Constituents water quality objectives, the more stringent shall apply.

**Electrical Conductivity, Total Dissolved Solids, and Chloride--Delta Waters**

Per State Board adoption of the Delta Plan and Water Rights Decision 1485 in August 1978, the objectives for salinity (electrical conductivity, total dissolved solids, and chloride) and flow which apply to the Delta are listed in Table III-5 at the chapter's end. See Figure III-2 for an explanation of year types.

**Table III-3**
**ELECTRICAL CONDUCTIVITY AND TOTAL DISSOLVED SOLIDS**

| PARAMETER | WATER QUALITY OBJECTIVES | APPLICABLE WATER BODIES |
|---|---|---|
| Electrical Conductivity (at 25°C) | Shall not exceed 230 micromhos/cm (50 percentile) or 235 micromhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain; or 240 micromhos/cm (50 percentile) or 340 micromhos/cm (90 percentile) at I Street Bridge, based upon previous moving 10 years of record. | Sacramento River (13, 30) |
| | Shall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River. | North Fork of the Feather River (33); Middle Fork of the Feather River from Little Last Chance Creek to Lake Oroville (36); Feather River from the Fish Barrier Dam at Oroville to Sacramento River (40) |
| | Shall not exceed 150 micromhos/cm from Friant Dam to Gravelly Ford (90 percentile). | San Joaquin River, Friant Dam to Mendota Pool (69) |
| Total Dissolved Solids | Shall not exceed 125 mg/l (90 percentile) | North Fork of the American River from the source to Folsom Lake (44); Middle Fork of the American River from the source to Folsom Lake (45); South Fork of the American River from the source to Folsom Lake (48, 49); American River from Folsom Dam to Sacramento River (51) |
| | Shall not exceed 100 mg/l (90 percentile) | Folsom Lake (50) |
| | Shall not exceed 1,300,000 tons | Goose Lake (2) |

## Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

## Settleable Material

Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

## Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

## Tastes and Odors

Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

## Temperature

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.

Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions.

At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

Temperature changes due to controllable factors shall be limited for the water bodies specified as described in Table III-4. To the extent of any conflict with the above, the more stringent objective applies.

**TABLE III-4**
**SPECIFIC TEMPERATURE OBJECTIVES**

| DATES | APPLICABLE WATER BODY |
|---|---|
| From 1 December to 15 March, the maximum temperature shall be 55°F. | Sacramento River from its source to Box Canyon Reservoir (9); Sacramento River from Box Canyon Dam to Shasta Lake (11) |
| From 16 March to 15 April, the maximum temperature shall be 60°F. | |
| From 16 April to 15 May, the maximum temperature shall be 65°F. | |
| From 16 May to 15 October, the maximum temperature shall be 70°F. | |
| From 16 October to 15 November, the maximum temperature shall be 65°F. | |
| From 16 November to 30 November, the maximum temperature shall be 60°F. | |
| The temperature in the epilimnion shall be less than or equal to 75°F or mean daily ambient air temperature, whichever is greater. | Lake Siskiyou (10) |
| The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City nor above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery. | Sacramento River from Shasta Dam to I Street Bridge (13, 30) |

## Toxicity

All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Board. The Regional Board may also refer to criteria for toxic substances developed by the State Water Resources Control Board, the U.S. Food and Drug Administration, the National Academy of Sciences, the Environmental Protection Agency, and other organizations to evaluate conformity with this objective.

The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge, or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate; additional numerical receiving water quality objectives for specific toxicants will be established as sufficient data become available; and source control of toxic substances will be encouraged.

## Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTUs), increases shall not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

Exceptions to the above limits will be considered when a dredging operation can cause an increase in turbidity. In those cases, an allowable zone of dilution within which turbidity in excess of the limits may be tolerated will be defined for the operation and prescribed in a discharge permit.

For Folsom Lake (50) and American River (Folsom Dam to Sacramento River) (51), except for periods of storm runoff, the turbidity shall be less than or equal 10 NTUs. To the extent of any conflict with the general turbidity objective, the more stringent applies.

For Delta waters, the general objectives for turbidity apply subject to the following: except for periods of storm runoff, the turbidity of Delta waters shall not exceed 50 NTUs in the waters of the Central Delta and 150 NTUs in other Delta waters. Exceptions to the Delta specific objectives will be considered when a dredging operation can cause an increase in turbidity. In this case, an allowable zone of dilution within which turbidity in excess of limits can be tolerated will be defined for the operation and prescribed in a discharge permit.

# WATER QUALITY OBJECTIVES FOR GROUND WATERS

The following objectives apply to all ground waters of 5A, 5B, and 5C.

## Bacteria

In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

## Chemical Constituents

Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.

Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels specified in California Code of Regulations, Title 22, Division 4, Chapter 15.

Ground waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.

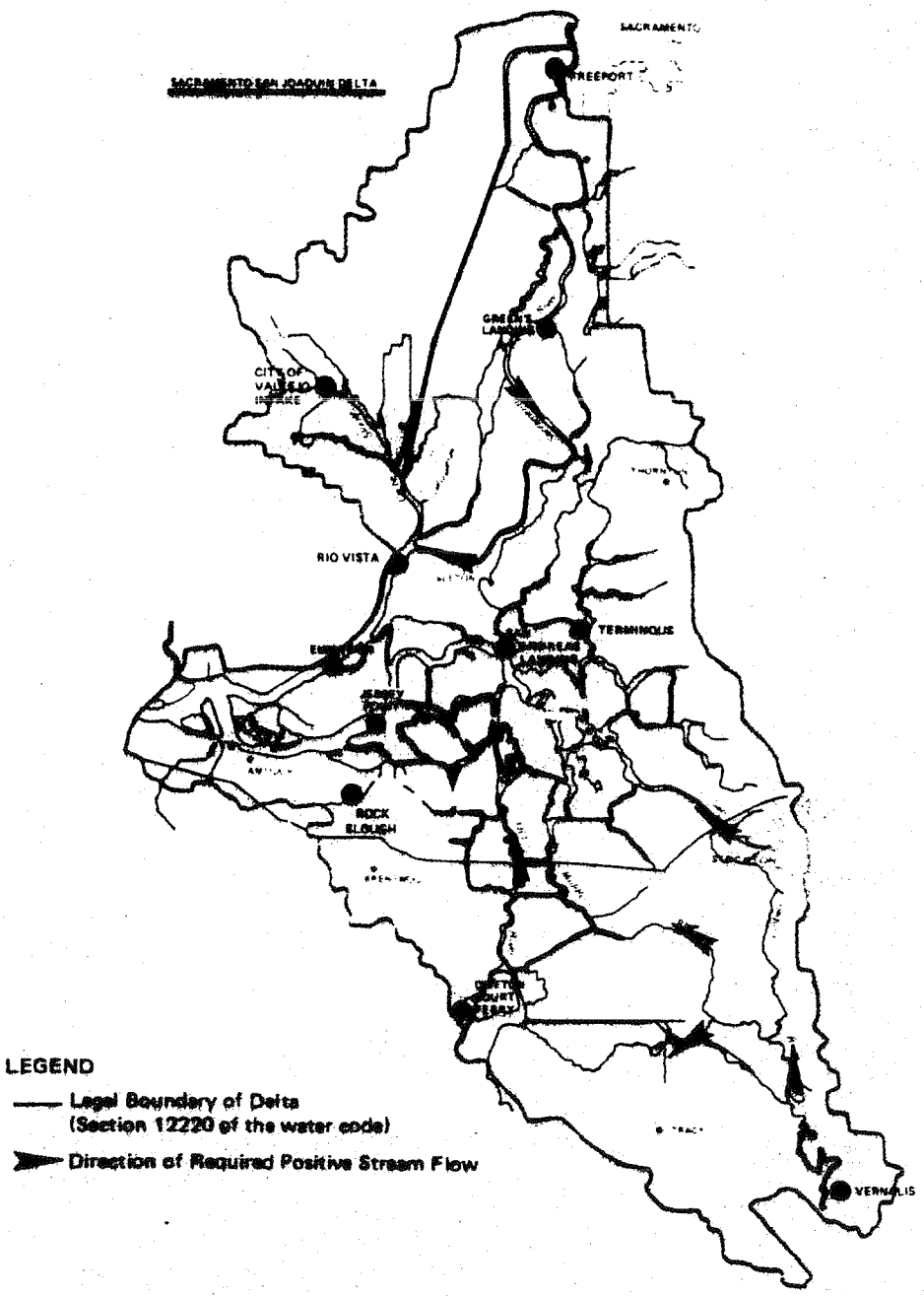
## Radioactivity

Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels specified in California Code of Regulations, Title 22, Division 4, Chapter 15.

## Tastes and Odors

Ground waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

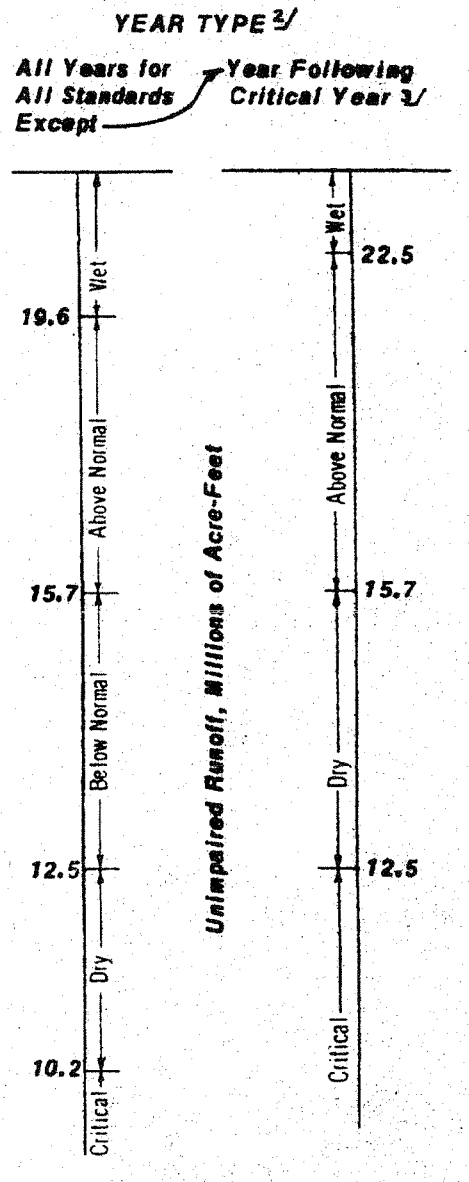
## BOUNDARIES AND WATER QUALITY STATIONS



# YEAR CLASSIFICATION

Year classification shall be determined by the forecast of Sacramento Valley unimpaired runoff for the current water year *(October 1 of the preceding calendar year through September 30 of the current calendar year)* as published in California Department of Water Resources Bulletin 120 for the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

| *YEAR TYPE* | *RUNOFF, MILLIONS OF ACRE-FEET* |
|---|---|
| Wet 1/ | equal to or greater than 19.6 (except equal to or greater than 22.5 in a year following a critical year). 3/ |
| Above Normal 1/ | greater than 15.7 and less than 19.6 (except greater than 15.7 and less than 22.5 in a year following a critical year). 3/ |
| Below Normal 1/ | equal to or less than 15.7 and greater than 12.5 (except in a year following a critical year). 3/ |
| Dry | equal to or less than 12.5 and greater than 10.2 (except equal to or less than 15.7 and greater than 12.5 in a year following a critical year). 3/ |
| Critical | equal to or less than 10.2 (except equal to or less than 12.5 in a year following a critical year). 3/ |




---

1/ *Any otherwise wet, above normal, or below normal year may be designated a subnormal snowmelt year whenever the forecast of April through July unimpaired runoff reported in the May issue of Bulletin 120 is less than 5.9 million acre-feet.*

2/ *The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.*

3/ *"Year following critical year" classification does not apply to Agricultural, Municipal and Industrial standards.*

# WATER QUALITY STANDARDS
## FOR THE SACRAMENTO–SAN JOAQUIN DELTA AND SUISUN MARSH [1/]

| BENEFICIAL USE PROTECTED and LOCATION | PARAMETER | DESCRIPTION | YEAR TYPE [2/] | VALUES |
|---|---|---|---|---|
| **MUNICIPAL and INDUSTRIAL** | | | | |
| Contra Costa Canal Intake at Pumping Plant No. 1 | Chloride | Maximum Mean Daily $Cl^-$ in mg/l | All | 250 |
| Contra Costa Canal Intake at Pumping Plant No. 1 or Antioch Water Works Intake on San Joaquin River | Chloride | Maximum Mean Daily 150 mg/l Chloride for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (% of Year shown in parenthesis) | | Number of Days Each Calendar Year Less than 150 mg/l Chloride |
| | | | Wet | 240 (66%) |
| | | | Ab. Normal | 190 (52%) |
| | | | Bl. Normal | 175 (48%) |
| | | | Dry | 165 (45%) |
| | | | Critical | 155 (42%) |
| City of Vallejo Intake at Cache Slough | Chloride | Maximum Mean Daily $Cl^-$ in mg/l | All | 250 |
| Clifton Court Forebay Intake at West Canal | Chloride | Maximum Mean Daily $Cl^-$ in mg/l | All | 250 |
| Delta Mendota Canal at Tracy Pumping Plant | Chloride | Maximum Mean Daily $Cl^-$ in mg/l | All | 250 |
| **AGRICULTURE** | | | | 0.45 EC April 1 to Date Shown / EC from Date Shown 3/ to Aug. 15 |
| *WESTERN DELTA* | | | | |
| Emmaton on the Sacramento River | Electrical Conductivity | Maximum 14-day Running Average of Mean Daily EC in mmhos | Wet | Aug. 15 / — |
| | | | Ab. Normal | July 1 / 0.63 |
| | | | Bl. Normal | June 20 / 1.14 |
| | | | Dry | June 15 / 1.67 |
| | | | Critical | — / 2.78 |
| Jersey Point on the San Joaquin River | Electrical Conductivity | Maximum 14-day Running Average of Mean Daily EC in mmhos | Wet | Aug. 15 / — |
| | | | Ab. Normal | Aug. 15 / — |
| | | | Bl. Normal | June 20 / 0.74 |
| | | | Dry | June 15 / 1.35 |
| | | | Critical | — / 2.20 |
| *INTERIOR DELTA* | | | | |
| Terminous on the Mokelumne River | Electrical Conductivity | Maximum 14-day Running Average of Mean Daily EC in mmhos | Wet | Aug. 15 / — |
| | | | Ab. Normal | Aug. 15 / — |
| | | | Bl. Normal | Aug. 15 / — |
| | | | Dry | Aug. 15 / — |
| | | | Critical | — / 0.54 |
| San Andreas Landing on the San Joaquin River | Electrical Conductivity | Maximum 14-day Running Average of Mean Daily EC in mmhos | Wet | Aug. 15 / — |
| | | | Ab. Normal | Aug. 15 / — |
| | | | Bl. Normal | Aug. 15 / — |
| | | | Dry | June 25 / 0.58 |
| | | | Critical | — / 0.87 |
| *SOUTHERN DELTA* | | | | |
| Vernalis on the San Joaquin River | Total Dissolved Solids | Maximum 30-day Running Average of Mean Daily TDS in mg/l | All (after New Melones Reservoir becomes operational and until the standards below become effective) | 500 |
| | | | | Apr. 1 to Aug. 31 / Sept. 1 to March 31 |
| Tracy Road Bridge on Old River<br>Old River near Middle River<br>Brandt Bridge on San Joaquin River<br>Vernalis on San Joaquin River | Electrical Conductivity | Maximum 30-day Running Average of Mean Daily EC in mmhos | All (to become effective only upon the completion of suitable circulation and water supply facilities) [4/] | 0.7 / 1.0 |

## WATER QUALITY STANDARDS
## FOR THE SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH [1]

| BENEFICIAL USE PROTECTED and LOCATION | PARAMETER | DESCRIPTION | YEAR TYPE [2] | VALUES |
|---|---|---|---|---|
| **FISH AND WILDLIFE** | | | | |
| • *STRIPED BASS SPAWNING* | | | | |
| *Prisoners Point on the San Joaquin River* | *Electrical Conductivity* | *Average of mean daily EC for the period not to exceed* | *All* | *April 1 to May 5: 0.550 mmhos* |
| *Chipps Island* | *Delta Outflow Index in cfs* | *Average of the daily Delta outflow index for the period, not less than* | *All* | *April 1 to April 14: 8700 cfs* |
| *Antioch Waterworks Intake on the San Joaquin River* | *Electrical Conductivity* | *Average of mean daily EC for the period, not more than* | *All* | *April 15 to May 5: 1.5 mmhos* |
| *Antioch Waterworks Intake* | *Electrical Conductivity (Relaxation Provision – replaces the above Antioch and Chipps Island Standard whenever the projects impose deficiencies in firm supplies [5]* | *Average of mean daily EC for the period, not more than the values corresponding to the deficiencies taken (linear interpolation to be used to determine values between those shown)* | *All – whenever the projects impose deficiencies in firm supplies [5]* | *Total Accumulated Deficiency MAF / April 1 to May 5 EC in mmhos:* 0 → 1.5; 0.5 → 1.9; 1.0 → 2.5; 1.5 → 3.4; 2.0 → 4.4; 3.0 → 10.3; 4.0 or more → 25.2 |
| • *STRIPED BASS SURVIVAL* | | | | |
| *Chipps Island* | *Delta Outflow Index in cfs* | *Average of the daily Delta outflow index for each period shown not less than* | | *May 6–31 / June / July* |
| | | | *Wet* | 14,000 / 14,000 / 10,000 |
| | | | *Ab. Normal* | 14,000 / 10,700 / 7,700 |
| | | | *Bl. Normal* | 11,400 / 9,500 / 6,500 |
| | | | *Subnormal Snowmelt* | 6,500 / 5,400 / 3,600 |
| | | | *Dry [6]* | 4,300 / 3,600 / 3,200 |
| | | | *Dry [7] or Critical* | 3,300 / 3,100 / 2,900 |
| • *SALMON MIGRATIONS* | | | | |
| *Rio Vista on the Sacramento River* | *Computed net stream flow in cfs* | *Minimum 30-day running average of mean daily net flow* | | *Jan. / Feb. 1–Mar. 15 / Mar. 16–June 30* |
| | | | *Wet* | 2,500 / 3,000 / 5,000 |
| | | | *Ab. Normal* | 2,500 / 2,000 / 3,000 |
| | | | *Bl. Normal* | 2,500 / 2,000 / 3,000 |
| | | | *Dry or Critical* | 1,500 / 1,000 / 2,000 |
| | | | | *July / Aug. / Sept. 1–Dec. 31* |
| | | | *Wet* | 3,000 / 1,000 / 5,000 |
| | | | *Ab. Normal* | 2,000 / 1,000 / 2,500 |
| | | | *Bl. Normal* | 2,000 / 1,000 / 2,500 |
| | | | *Dry or Critical* | 1,000 / 1,000 / 1,500 |
| • *SUISUN MARSH* | | | | |
| *Chipps Island at D&A Ferry Landing* | *Electrical Conductivity* | *Maximum 28-day running average of mean daily EC* | | *Jan.–May / Oct.–Dec.* |
| | | | *Wet* | 12.5 mmhos / 12.5 mmhos |
| | | | *Ab. Normal* | 12.5 mmhos / 12.5 mmhos |
| | | | *Bl. Normal* | 12.5 mmhos / 12.5 mmhos |
| | | | *Dry or Critical* | 12.5 mmhos / 15.6 mmhos |
| | | *(The 15.6 mmhos EC Standard applies only when project water users are taking deficiencies in scheduled water supplies [8] otherwise the 12.6 mmhos EC remains in effect.)* | | |
| *Chipps Island* | *Delta Outflow Index in cfs* | *Average of the daily Delta outflow index for each month, not less than values shown* | *Wet* | *February–May: 10,000 cfs* |
| | | | *Subnormal Snowmelt* | *February–April: 10,000 cfs* |
| | | *Minimum daily Delta outflow index for 60 consecutive days in the period* | *Ab. Norm. and Bl. Norm.* | *January–April: 12,000 cfs* |

## WATER QUALITY STANDARDS
## FOR THE SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH [1]

| BENEFICIAL USE PROTECTED and LOCATION | PARAMETER | DESCRIPTION | YEAR TYPE [2] | VALUES |
|---|---|---|---|---|
| **FISH AND WILDLIFE** | | | | |
| • *SUISUN MARSH* | | | | |
| Chipps Island (continued) | Delta Outflow Index in cfs | Average of the daily Delta outflow index for each month, not less than values shown | All (if greater flow not required by above standard)—whenever storage is at or above the minimum level in the flood control reservation envelope at two out of three of the following: Shasta Reservoir, Oroville Reservoir, and CVP storage on the American River | Jan.–May 6,000 cfs |
| Collinsville on Sacramento River (C-2)<br>Mirens Landing on Montezuma Slough (S-64)<br>Montezuma Slough at Cutoff Slough (S-48)<br>Montezuma Slough near mouth<br>Suisun Slough near Volanti Slough (S-42)<br>Suisun Slough near mouth (S-31)<br>Goodyear Slough south of Pierce Harbor (S-35)<br>Cordelia Slough above S. P. R.R. (S-32) | Electrical Conductivity | The monthly average of both daily high tide values not to exceed the values shown (or demonstrate that equivalent or better protection will be provided at the location) | All – To become effective Oct. 1, 1984 | Month / EC in mmhos:<br>Oct. 19.0<br>Nov. 15.5<br>Dec. 15.5<br>Jan. 12.5<br>Feb. 8.0<br>Mar. 8.0<br>Apr. 11.0<br>May 11.0 |
| • *OPERATIONAL CONSTRAINTS* | | | | |
| Minimize diversion of young striped bass from the Delta | Diversions in cfs | The mean monthly diversions from the Delta by the State Water Project (Department) not to exceed the values shown. | All | May 3,000 / June 3,000 / July 4,600 |
| | | The mean monthly diversions from the Delta by the Central Valley Project (Bureau), not to exceed the values shown | All | May 3,000 / June 3,000 |
| Minimize diversion of young striped bass into Central Delta | | Closure of Delta cross channel gates for up to 20 days but no more than two out of four consecutive days at the discretion of the Department of Fish and Game upon 12 hours notice | All – whenever the daily Delta outflow index is greater than 12,000 cfs | April 16–May 31 |
| Minimize cross Delta movement of Salmon | | Closure of Delta Cross Channel gates (whenever the daily Delta outflow index is greater than 12,000 cfs) | All | Jan. 1–April 15 |

# WATER QUALITY STANDARDS FOR THE SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH 1/

## FISH PROTECTIVE FACILITIES

Maintain appropriate records of the numbers, sizes, kinds of fish salvaged and of water export rates and fish facility operations.

### STATE FISH PROTECTIVE FACILITY

The facility is to be operated to meet the following standards to the extent that they are compatible with water export rates:

(a) King Salmon – from November through May 14, standards shall be as follows:
  (1) Approach Velocity – 3.0 to 3.5 feet per second
  (2) Bypass Ratio – maintain 1.2:1.0 to 1.6:1.0 ratios in both primary and secondary channels
  (3) Primary Bay – not critical but use Bay B as first choice
  (4) Screened Water System – the velocity of water exiting from the screened water system is not to exceed the secondary channel approach velocity. The system may be turned off at the discretion of the operators.

(b) Striped Bass and White Catfish – from May 15 through October, standards shall be as follows:
  (1) Approach Velocity – in both the primary and secondary channels, maintain a velocity as close to 1.0 feet per second as is possible
  (2) Bypass Ratio
    (i) When only Bay A (with center wall) is in operation maintain a 1.2:1.0 ratio
    (ii) When both primary bays are in operation and the approach velocity is less than 2.5 feet per second, the bypass ratio should be 1.5:1.0
    (iii) When only Bay B is operating the bypass ratio should be 1.2:1.0
    (iv) Secondary channel bypass ratio should be 1.2:1.0 for all approach velocities.
  (3) Primary Channel – use Bay A (with center wall) in preference to Bay B
  (4) Screened Water Ratio – if the use of screened water is necessary, the velocity of water exiting the screened water system is not to exceed the secondary channel approach velocity
  (5) Clifton Court Forebay Water Level – maintain at the highest practical level.

### TRACY FISH PROTECTIVE FACILITY

The secondary system is to be operated to meet the following standards, to the extent that they are compatible with water export rates:

(a) The secondary velocity should be maintained at 3.0 to 3.5 feet per second whenever possible from February through May while salmon are present

(b) To the extent possible, the secondary velocity should not exceed 2.5 feet per second and preferably 1.5 feet per second between June 1 and August 31, to increase the efficiency for striped bass, catfish, shad, and other fish. Secondary velocities should be reduced even at the expense of bypass ratios in the primary, but the ratio should not be reduced below 1:1.0

(c) The screened water discharge should be kept at the lowest possible level consistent with its purpose of minimizing debris in the holding tanks

(d) The bypass ratio in the secondary should be operated to prevent excessive velocities in the holding tanks, but in no case should the bypass velocity be less than the secondary approach velocity.

---

## FOOTNOTES

1/ Except for flow, all values are for surface zone measurements. Except for flow, all mean daily values are based on at least hourly measurements. All dates are inclusive.

2/ See Figure III-2.

3/ When no date is shown in the adjacent column, EC limit in this column begins on April 1.

4/ If contracts to ensure such facilities and water supplies are not executed by January 1, 1980, the Board will take appropriate enforcement actions to prevent encroachment on riparian rights in the southern Delta.

5/ For the purpose of this provision firm supplies of the Bureau shall be any water the Bureau is legally obligated to deliver under any CVP contract of 10 years or more duration, excluding the Friant Division of the CVP, subject only to dry and critical year deficiencies. Firm supplies of the Department shall be any water the Department would have delivered under Table A entitlements of water supply contracts and under prior right settlements had deficiencies not been imposed in that dry or critical year.

6/ Dry year following a wet, above normal or below normal year.

7/ Dry year following a dry or critical year.

8/ Scheduled water supplies shall be firm supplies for USBR and DWR plus additional water ordered from DWR by a contractor the previous September, and which does not exceed the ultimate annual entitlement for said contractor.

---

NOTE: EC values are mmhos/cm at 25°C.

# IV. IMPLEMENTATION

The Porter-Cologne Water Quality Control Act states that basin plans consist of beneficial uses, water quality objectives and a program of implementation for achieving their water quality objectives.[7] The implementation program shall include, but is not limited to:

1. A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private;

2. A time schedule for the actions to be taken; and,

3. A description of surveillance to be undertaken to determine compliance with the objectives.[8]

In addition, State law requires that basin plans indicate estimates of the total cost and identify potential sources of funding of any agricultural water quality control program prior to its implementation.[9] This chapter of the Basin Plan responds to all but the surveillance requirement. That is described in Chapter V.

This chapter is organized as follows: The first section is a general description of typical water quality concerns and control considerations. The second section describes the nature of State and Regional Board control actions which are necessary to achieve the water quality objectives of Chapter III. The third section contains recommendations for appropriate action by other entities. The fourth section describes the continuous planning program that the Regional Board uses to maintain water quality control. The fifth section identifies the current actions and schedule for the actions to be taken by the Regional Board. The last section lists the estimated costs and funding sources for agricultural water quality control programs that are implemented by the Regional Board.

## TYPICAL WATER QUALITY CONCERNS

Water quality concerns are potential water quality problems, i.e., impairments of beneficial uses or degradations of water quality. At any given time, water quality problems generally reflect the intensity of activities of key discharge sources and the volume, quality, and uses of the receiving waters affected by the discharges. Major discharge categories in sub-basins 5A, 5B, and 5C are agriculture, municipalities and industries, and mineral exploration and extraction.

The amounts and types of problems associated with discharge activities change over time. Early federal and State control efforts tended to focus on the most understood or visible problems such as the discharge of raw sewage to rivers and streams. As these problems were controlled and as pollutant detection and measurement methods improved, regulatory emphasis shifted. For example, control of toxic discharges is now a major concern. Toxicity can be associated with many discharge activities. Its effects may be first expressed as acute or chronic reductions in the number of organisms in receiving waters. Minute amounts of toxic materials may also impair beneficial uses from accumulation in tissues or sediments.

Discharges are sometimes sorted into *point source* and *nonpoint source* categories. A point source discharge usually refers to waste emanating from a single, identifiable place. A nonpoint source discharge usually refers to waste emanating from diffused locations. The Regional Board may control either type of discharge, but the control approaches may differ.

What follows is a brief description of the water quality impacts associated with basin discharge activities and the Regional Board's control considerations.

### Agriculture

Agricultural activities affect water quality in a number of ways. There are unique problems associated with irrigated agriculture, agricultural support activities, and animal confinement operations because of the volume of water used and the diffused nature of many of the discharges.

#### Irrigated Agriculture

Irrigated agriculture accounts for most water use in the three sub-basins. Both the San Joaquin and the

Sacramento Rivers carry substantial amounts of agricultural return water or drainage. Agricultural drainage contributes salts, nutrients, pesticides, trace elements, sediments, and other by-products that affect the water quality of the rivers and the Delta.

Salt management is critical to agriculture in the Central Valley. Evaporation and crop transpiration remove water from soils which can result in an accumulation of salts in the root zone of the soils at levels that retard or inhibit plant growth. Additional amounts of water often are applied to leach the salts below the root zones. The leached salts can reach ground or surface water. The movement of the salts to surface waters may be a natural occurrence of subsurface flows or it can result from the surface water discharge of subsurface collection systems (often called tile drains) which are routinely employed in areas of the Central Valley where farm lands have poor drainage capabilities. The tile drainage practice consists of installing collection systems below the root zone of the crops to drain soils that would otherwise stay saturated because of subsurface conditions that restrict drainage. Tile drain installation may result in TDS concentrations in drainage water many times greater than in the irrigation water that was applied to the crops. Tile drain water can also contain pesticides, trace elements, and nutrients.

Pesticides and nutrients are also major ingredients of surface agricultural drainage. They have found their way to ground and surface waters in many areas of the basins. Fish and aquatic wildlife deaths attributable to pesticide contamination of surface water occur periodically. Nitrate levels exceeding the State drinking water standards occur in ground water in the basins and there has been closure of domestic supply wells because of nitrates in several locations.

Discharge of sediment is another problem encountered with agriculture. Sedimentation impairs fisheries and, by virtue of the characteristics of many organic and inorganic compounds to bind to soil particles, it serves to distribute and circulate toxic substances through the riparian, estuarine, and marine systems. Sedimentation also increases the costs of pumping and treating water for municipal and industrial use.

The Regional Board approaches problems related to irrigated agriculture as it does other categories of problems. Staff are assigned to identify and evaluate beneficial use impairments associated with agricultural discharges. Control actions are developed and implemented as appropriate per the schedules identified through the continuous planning process (see Chapter IV).

**Agricultural Support Activities**

These are the activities associated with the application of pesticides, disposal of pesticide rinse waters, and formulation of pesticides and fertilizers. Major water quality problems connected with all of these operations stem from the discharge of waters used to clean equipment or work areas. The Region has confirmed cases of ground water contamination as a result of improper containment and disposal of rinse water.

Many of the application facilities fall under other Regional Board regulatory programs. When appropriate, best management practices are recommended. Regional Board staff also inspects high risk sites to evaluate compliance. Enforcement strategies are implemented as warranted.

**Animal Confinement Operations**

Runoff from animal confinement facilities (e.g., stockyards, dairies, poultry ranches) can impair both surface and ground water beneficial uses. The animal wastes may produce significant amounts of coliform, ammonia, nitrate, and TDS contamination. The greatest potential for water quality problems has historically stemmed from the overloading of the facilities' waste containment and treatment ponds during the rainy season. Many of the facilities are regulated under the requirements of other Regional Board programs. Otherwise, site specific best management practices are implemented at problem sites.

## Silviculture

Forest management activities, principally timber harvesting and application of herbicides, have the potential to impact beneficial uses. Timber harvest activities annually take place on tens of thousands of acres of private and federal land in the Central Valley Region and they may affect water quality throughout the area being harvested. Erosion can result from road construction, logging, and post-logging operations. Logging debris may be deposited in streams. Landslides and other mass

soil movements can also occur as a result of timber operations.

Herbicides may be used in silviculture to reduce commercial timber competition from weeds, grasses, and other plants or to prepare a site for planting of commercial species by eliminating existing vegetation. Use of herbicides has caused concern among regulatory agencies and the public because of the possibility of transport from target sites to streams by wind and water runoff.

The State and Regional Boards entered into agreements with both the U.S. Forest Service and the California Department of Forestry and Fire Protection which require these agencies to control nonpoint source discharges by implementing control actions certified by the State Board as best management practices (*BMPs*). The Regional Board enforces compliance with BMP implementation and may impose control actions above and beyond what is specified in the agreements if the practices are not applied correctly or do not protect water quality. Point source discharges on federal and State and private forest lands are regulated through waste discharge limits.

## Municipalities and Industries

Municipal and industrial point source discharges to surface waters are generally controlled through National Pollutant Discharge Elimination System (*NPDES*) permits. Although the NPDES program was established by the Clean Water Act, the permits are prepared and enforced by the Regional Boards per California's authority for the Act. The number of cases of ground water pollution attributable to industrial or municipal sources has increased steadily. For example, results of the Region's inventory of underground storage tanks indicate that the number of leaking tanks is likely to be very high. Ground water contamination from other industrial sources generally occurs from practices of disposing of fluids or other materials used in production processes. Waste compounds have been discharged directly to unlined sumps, pits, or depressions and spread on soils. In some cases, these disposal practices went on many years before they were discovered or discontinued.

Runoff from residential and industrial areas also contributes to water quality degradation. Urban storm water runoff contains pesticides, oil, grease, and heavy metals. Because these pollutants accumulate during the dry summer months, the first major autumn storm can flush a highly concentrated load to receiving waters and catch basins. Combined storm and sanitary systems may result in some runoff to sewage treatment plants. In other cases, storm water collection wells can produce direct discharges to ground water. Impacts of storm water contaminants on surface and ground waters are an important concern.

## Mineral Exploration and Extraction

Mineral exploration and extraction discharges are associated with several ore, geothermal, and petroleum/natural gas activities. The discharge of greatest concern in sub-basins 5A, 5B, and 5C is the result of ore exploration and extraction.

Ore mining water quality problems stem from both drainage and sedimentation. Mine drainage is commonly acidic and high in heavy metals that can have severe effects on aquatic life. Acid drainage is of most concern with inactive or abandoned mines because control may be hindered by questions about mine ownership and operating history. Along much of the east side of the Coast Range, runoff, drainage, and erosion from old mercury mines is a problem that has resulted in high levels of mercury in aquatic environments and fish tissue. There are also major metal and acid discharges associated with abandoned copper mines in the Sierra/ Cascades drainages. Sedimentation can be a problem in the construction and operation of many mines.

Geothermal operations in the basins are centered in the Geysers Area of Lake County. Potential impacts to water quality are caused by soil erosion from road construction and site preparation, high pressure steam blowouts, and accidental spills of materials from drilling operations, power plants, steam condensate lines, and waste transport accidents. Bentonite clay, boron, ammonia, sodium hydroxide, sulfur compounds, heavy metals, and petroleum products are found in various concentrations in mud sumps, steam condensate lines, and sulfide abatement sludge. Operational failures can release these substances into waterways.

Drainage from active and inactive mines remains a significant problem for the Regional Board. Efforts to control drainage have gradually expanded

over the years. A staff assessment of mine water quality problems done in 1979 helped direct the Regional Board approach to the problems (see Guidelines section of this chapter). Sedimentation caused by mining can be addressed by discharge requirements for existing mines, but the Regional Board does not have a specific program for controlling erosion from abandoned or inactive mines.

## Other Discharge Activities

Some remaining discharges of major concern include sedimentation from land development activities in the foothills and mountains, leachate from septic tank/individual wastewater disposal systems, and dredging and dredging spoils runoff.

Many of the foothill/mountain counties in the sub-basins face high growth rates. Sedimentation from the land disturbances associated with residential and commercial development is an increasing problem that, when added to the sedimentation resulting from farming and silvicultural operation, may require establishment of a region-wide erosion control program. The Regional Board's current practice is to emphasize local government control of erosion caused by residential development. Erosion control guidelines are included in the erosion/sedimentation action plan which is in the Appendix.

Improperly located, designed, constructed and/or maintained on-site wastewater treatment and disposal systems can result in ground and surface water degradation and public health hazards. The Regional Board's approach is that the control of individual wastewater treatment and disposal systems is best accomplished by local environmental health departments enforcing county ordinances designed to provide protection to ground and surface waters. To help the counties with enforcement, the Regional Board adopted guidelines which contain criteria for proper installation of conventional systems (see Guidelines section of this chapter and Appendix). Although the Regional Board has also prohibited septic tank usage in certain areas, it has formal and informal agreements with counties to evaluate field performance of alternative and special design systems.

The energy crisis of the 1970s resulted in a surge of small hydroelectric facility development in the mountains and foothills. Impairments to beneficial uses may occur because of erosion from construction and changes in water temperature. The Regional Board has published guidelines for small hydro-electric facilities (see Guidelines section of this chapter and Appendix) to help address some of the problems associated with small hydroelectric plants.

Dredging is a problem because the process can result in turbidity and the reintroduction and resuspension of harmful metal or organic materials. This latter effect occurs directly as a result of the displacement of sediment at the dredging site and indirectly as a result of erosion of dredge spoil to surface waters at the deposition site. There is much dredging of the Sacramento and San Joaquin Rivers and the Delta because of the need to maintain the ship channels to the Ports of Sacramento and Stockton. The Regional Board regulates dredging operations on a case-by-case basis. Operational criteria may result from permits or the water quality certification requirements stemming from Section 401(a) of the Clean Water Act.

In addition to the problems described above, the Regional Board responds to spontaneous discharges such as spills, leaks and overflows. These can have cumulatively or individually significant effects on beneficial uses of ground and surface waters.

## Water Bodies with Special Water Quality Problems

Water quality management may require the identification and ranking of water bodies with regard to certain quality parameters. Water Quality Limited Segments (*WQLSs*) are one example of expressing water quality problems by water bodies. WQLSs are those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate effluent limitations for point sources.[10]

Additional treatment beyond minimum federal requirements will be imposed on dischargers to Water Quality Limited Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.

The Regional Board's current list of WQLSs is Appendix Item 21.

## THE NATURE OF CONTROL ACTIONS IMPLEMENTED BY THE REGIONAL BOARD

The nature of actions to achieve water quality objectives consists of Regional Board efforts:

1. to identify potential water quality problems;

2. to confirm and characterize water quality problems through assessments for source, frequency, duration, extent, fate, and severity;

3. to remedy water quality problems through imposing or enforcing appropriate measures;

4. to monitor problem areas to assess effectiveness of the remedial measures.

Generally, the actions associated with the first step consist of surveys or reviews of survey information and other data sources to isolate possible impairments of beneficial uses or water quality.

The characterization step usually involves studies that attempt to answer questions about a water quality problem's source, extent, duration, frequency, and severity. Information on these parameters is essential to confirm a problem and prepare for remedy. The Regional Board may gain this information through its own work or through data submittals requested of actual or potential dischargers under Section 13267 of the California Water Code.

Problem remedy calls for the Regional Board to prevent or cleanup problems. A common means of prevention is through the issuance of National Pollutant Discharge Elimination System (NPDES) permits, waste discharge requirements (*WDRs*), discharge prohibitions, and other discharge restrictions. Cleanup is implemented through enforcement measures such as Cease and Desist (*C&D*) and Cleanup and Abatement (*C&A*) orders. The NPDES is a requirement of the Federal Clean Water Act (Section 402) and California has implementing responsibility. The national permit system only applies to certain surface water discharges. WDRs, which encompass permits, are called for by State law, Water Code Section 13260, et seq. The WDRs system is not as restricted as the Federal NPDES. As practical, WDRs may be used to control any type of discharge to ground or surface waters. C&D and C&A orders are two of the enforcement tools available to the Regional Board to correct actual or potential violations of WDRs, NPDES permits, prohibitions, and other water quality control obligations.

The details of the monitoring step are explained in Chapter V. In general, the Regional Board has wide latitude to require actual and potential dischargers to submit monitoring and surveillance information, in addition to using State Board data or collecting its own.

Whatever actions that the Regional Board implements must be consistent with the Basin Plan's beneficial uses and water quality objectives, as well as certain State and Regional Boards' policies, plans, agreements, prohibitions, guidance, and other restrictions or requirements. These considerations are described below and included in the Appendix when noted.

### Control Action Considerations of the State Water Resources Control Board

**Policies and Plans**

There are eight State Board water quality control policies and four State Board water quality control plans to which Regional Board actions must conform. Two of the plans, the Ocean Plan and the Tahoe Plan, do not affect Basins 5A, 5B, and 5C. The policies and plans that are applicable are described below.

1. The State Policy for Water Quality Control

   This policy declares the State Board's intent to protect water quality through the implementation of water resources management programs and serves as the general basis for subsequent water quality control policies. It was adopted by the State Board in 1972. It is Appendix Item 1.

2. State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Water in California

   The State Board adopted this policy on 28 October 1968. Essentially, it generally restricts the Regional Board and dischargers from reducing the water quality of surface or ground waters even though such a reduction in water quality might still allow the protection of the beneficial uses associated with the water prior to the quality reduction. The goal of the policy is to maintain high quality waters and the Regional Board must enforce it.

   Changes in water quality are allowed only if the change is consistent with maximum benefit to the people of the State; does not unreasonably affect present and anticipated beneficial uses; and, does not result in water quality less than that prescribed in water quality control plans or policies. EPA water quality standards regulations require each state to adopt an "antidegradation" policy and specify the minimum requirements for it.[11/] Resolution No. 68-16 preceded the federal policy and applies to both ground and surface waters. The State Board has interpreted State Board Resolution No. 68-16 to incorporate the federal antidegradation policy. Therefore, the federal antidegradation policy must be followed where it is applicable. The federal antidegradation policy applies if a discharge or other activity, which began after November 28, 1975, will lower surface water quality. Application of the federal policy may be triggered by water quality impacts or mass loading impacts to receiving waters. Resolution No. 68-16 is Appendix Item 2; the federal policy is Appendix Item 23.

3. State Board Resolution No. 74-43, The Water Quality Control Policy for the Enclosed Bays and Estuaries of California

   This policy was adopted by the State Board on 16 May 1974 and provides water quality principles and guidelines for the prevention of water quality degradation in enclosed bays and estuaries to protect the beneficial uses of such waters. The Regional Board must enforce the policy and take actions consistent with its provisions. (This policy does not apply to wastes from boats or land runoff except as specifically indicated for siltation and combined sewer flows.) It is Appendix Item 3.

4. State Board Resolution No. 75-58, Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling

   This policy was adopted by the State Board in June 1975. Its purpose is to provide consistent principles and guidance for supplementary waste discharge requirements or other water quality control actions for thermal powerplants using inland waters for cooling. The Regional Board is responsible for its enforcement. It is Appendix Item 4.

5. State Board Resolution No. 77-1, Policy and Action Plan for Water Reclamation in California

   The policy was adopted 6 January 1977. Among other things, it requires the Regional Boards to conduct reclamation surveys and specifies reclamation actions to be implemented by the State and Regional Boards and other agencies. The policy and action plan are contained in the State Board report entitled Policy and Action Plan for Water Reclamation in California. Resolution No. 77-1 is Appendix Item 5.

6. State Board Resolution No. 87-22, Policy on the Disposal of Shredder Waste

   This State Board Resolution, adopted 19 March 1987, permits the disposal into certain landfills of wastes, produced by the mechanical destruction of car bodies, old appliances and similar castoffs, under specific conditions designated and enforced by the Regional Boards. It is Appendix Item 6.

7. State Board Resolution No. 88-23, Policy Regarding the Underground Storage Tanks Pilot Program

   The State Board adopted this policy on 18 February 1988. It implements a pilot program to fund oversight of remedial action at leaking underground storage tank sites, in cooperation with the California Department of Health Services. Oversight may be deferred to the Regional Boards. It is Appendix Item 7.

8. State Board Resolution No. 88-63, Sources of Drinking Water Policy

   This policy was adopted on 19 May 1988. It specifies which ground and surface waters are considered to be suitable or potentially suitable for the beneficial use of water supply (MUN). It allows the Regional Board some discretion in making MUN determinations. It is Appendix Item 8.

9. The Thermal Plan

   The Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California was adopted by the State Board on 18 May 1972 and amended 18 September 1975. It specifies water quality objectives, effluent quality limits, and discharge prohibitions related to thermal characteristics of interstate waters and waste discharges. It is Appendix Item 9.

10. The Delta Plan and Water Right Decision 1485

    In August 1978, the State Water Resources Control Board adopted two documents which set water quality standards for the Sacramento-San Joaquin Delta and Suisun Marsh. These two documents are the Delta Plan and Water Right Decision 1485.

    The Delta Plan consists of three elements: designation of beneficial uses to be protected; establishment of water quality objectives for reasonable protection of the beneficial uses; and establishment of a program of implementation for achieving these water quality standards. (The implementation program for the Delta provides specific measures which must be taken to satisfy water quality standards during the effective period of the plan and sets forth broad policy guidance to assist local, State and federal agencies in finalizing plans for additional project facilities.)

    In Decision 1485, the State Board set specific Delta water quality standards for flow and salinity as conditions in the water rights permits for the Federal Central Valley Project and the State Water Project. Decision 1485 also requires monitoring to determine compliance with Delta standards.

    The Delta flow and salinity standards are identified in Table III-5 of Chapter III.

**State Board Management Agency Agreements (MAAs) and Memorandum of Agreement (MOA)**

The Regional Board abides by one State Board agreement with a federal agency and two agreements with State agencies which have been formalized with either an MAA or an MOA signed by the State Board.

1. U. S. Forest Service Agreement

   On 26 February 1981 the State Board Executive Director signed an MAA with the U.S. Forest Service (*USFS*) which waives discharge requirements for certain USFS nonpoint source discharges provided that the Forest Service implements State Board approved best management practices (*BMPs*) and procedures and the provisions of the MAA. The MAA covers all USFS lands in California. Implementation of the BMPs, in conjunction with monitoring and performance review requirements approved by the State and Regional Boards, is the primary method of meeting the Basin Plan's water quality objectives for the activities to which the BMPs apply. The MAA does not include USFS point source discharges and in no way limits the authority of the Regional Board to carry out its legal responsibilities for management or regulation of water quality. It is Appendix Item 10.

2. California Department of Forestry Agreement

   In February 1988, the State Board signed an MAA with the California Department of Forestry and Fire Protection (*CDFFP*) and the California Board of Forestry (*BOF*), for the purpose of carrying out, pursuant to Section 208 of the Federal Clean Water Act, those portions of the State's Water Quality Management Plan (*WQMP*) related to controlling water quality impacts caused by silvicultural activities on nonfederal forest lands. As with the USFS MAA, the CDFFP agreement requires the Department to implement certain BMPs to protect water quality from timber harvest and associated activities. Approval of the MAA as a WQMP component by the EPA results in the Regional Boards relinquishing some authority to

issue WDRs for State timber operations.[12/] However, CDF and the Regional and State Boards must still ensure that the operations incorporate BMPs and comply with applicable water quality standards. Appendix F of the MAA also calls for the preparation of a Memorandum of Understanding (*MOU*) for the Regional Boards, the State Board, and the CDFFP to prescribe interagency procedures for implementing BMPs. The MAA is Appendix Item 11.

3. Department of Conservation Agreement

In March 1988, the State Board amended a February 1982 MOA with the State Department of Conservation, Division of Oil and Gas (*CDOG*), to regulate oil, gas, and geothermal fields' discharges. The agreement requires CDOG to notify the Regional Boards of all new operators, all pollution problems associated with operators, and proposed discharges. CDOG and Regional Boards must also work together, within certain time-lines, to review and prepare discharge permits. It is Appendix Item 12.

## Control Action Considerations of the Central Valley Regional Water Quality Control Board

**Policies and Plans**

1. Urban Runoff Policy

   a. Subregional municipal and industrial plans are required to assess the impact of urban runoff on receiving water quality and consider abatement measures if a problem exists.

   b. Effluent limitations for storm water runoff are to be included in NPDES permits where it results in water quality problems.

2. Disposal of Wastewater on Land Policy

The Regional Board encourages the disposal of wastewaters on land where practicable, and requires applicants for waste discharge requirements and discharge permits to evaluate land disposal as an alternative. Where studies show that year-round land disposal is not practicable, the Regional Board will require dischargers to evaluate dry season land disposal as an alternative.

3. Controllable Factors Policy

Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in exceedence of the water quality objectives. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Board or Regional Board, and that may be reasonably controlled.

4. The Water Quality Limited Segment Policy

Additional treatment beyond minimum federal requirements will be imposed on dischargers to Water Quality Limited Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.

5. San Joaquin River Agricultural Subsurface Drainage Policy

   a. The control of toxic trace elements in agriculture subsurface drainage, especially selenium, is the first priority.

   b. Of the two major options for disposal of salts produced by agricultural irrigation, export out of the basin has less potential for environmental impacts and, therefore, is the favored option. The San Joaquin River may continue to be used to remove salts from the basin so long as water quality objectives are met.

   c. The valleywide drain to carry the salts generated by agricultural irrigation out of the valley remains the best technical solution to the water quality problems of the San Joaquin River and Tulare Lake Basin.

      The Regional Board, at this time, feels that a valleywide drain will be the only feasible, long-range solution for achieving a salt balance in the Central Valley. The Regional

Board favors the construction of a valleywide drain under the following conditions:

All toxicants would be reduced to a level which would not harm beneficial uses of receiving waters.

The discharge would be governed by specific discharge and receiving water limits in an NPDES permit.

Long-term, continuous biological monitoring would be required.

d. Activities that increase the discharge of poor quality agricultural subsurface drainage are prohibited.

e. The control of agricultural subsurface drainage will be pursued on a regional basis.

f. The reuse of agricultural subsurface drainage will be encouraged, and action that would limit or prohibit it discouraged.

**Regional Board Memorandum of Understanding (MOU) and Memorandum of Agreement (MOA)**

1. U.S. Bureau of Land Management

In September 1985, the Regional Board Executive Officer signed MOUs with the three U.S. Bureau of Land Management Districts in the Central Valley (i.e., the Ukiah District, the Susanville District, and the Bakersfield District). The MOUs, which are identical for each District, aim at improving coordination between the two agencies for the control of water quality problems resulting from mineral extraction activities on BLM administered lands. The MOUs are Appendix Items 13 through 15.

2. U. S. Bureau of Reclamation Agreement

On 2 July 1969, the Regional Board signed an MOA with the Bureau of Reclamation to schedule water releases from the New Melones Unit of the Central Valley Project to maintain an oxygen level at or above 5 mg/l in the Stanislaus River downstream of the unit and to not exceed a mean monthly TDS concentration of 500 mg/l in the San Joaquin River immediately below the mouth of the Stanislaus River. The MOA's water quality requirements are subject to some conditions. The MOA is Appendix Item 22.

**Waivers**

State law allows Regional Boards to waive waste discharge requirements (WDRs) for a specific discharge or types of discharges where it is not against the public interest.[13/]

On 26 March 1982, the Regional Board adopted Resolution No. 82-036 to waive WDRs for certain discharges. The types of discharges and the limitations on the discharges which must be maintained if the waivers are to apply are shown in Table IV-1. These waivers are conditional and may be terminated at any time.

TABLE IV-1

WASTE DISCHARGE REQUIREMENT WAIVER AND LIMITATIONS

| TYPE OF WASTE DISCHARGE | LIMITATIONS |
|---|---|
| Air conditioner, cooling and elevated temperature waters | Small volumes which will not change temperature of receiving water more than 1 degree C. |
| Drilling muds | Discharged to a sump with two feet of freeboard. Sump must be dried by evaporation or pumping. Drilling-mud may remain in sump only if discharger demonstrates that it is nontoxic. Sump area shall be restored to pre-construction state within 60 days of completion or abandonment of well. |
| Clean oil containing no toxic materials | Used for beneficial purposes such as dust control, weed control and mosquito abatement where it cannot reach state waters. |

## TABLE IV-1 WASTE DISCHARGE REQUIREMENT WAIVER AND LIMITATIONS (continued)

| TYPE OF WASTE DISCHARGE | LIMITATIONS |
|---|---|
| Minor dredger operations | When soil is nontoxic and discharged to land. |
| Inert solid wastes (per California Code of Regulations, Section 2524) | Good disposal practices. |
| Test pumpings of fresh water wells. | When assurances are provided that pollutants are neither present nor added. |
| Storm water runoff | Where no water quality problems are contemplated and no federal NPDES permit is required. |
| Erosion from development | Where BMP plans have been formulated and implemented. |
| Pesticide rinse waters from applicators | Where discharger complies with Regional Board guidance. |
| Confined animal wastes | Where discharger complies with Regional Board guidance. |
| Minor stream channel alterations and suction dredging | Where regulated by Department of Fish and Game agreements. |
| Small, short-term sand and gravel operations | All operations and wash waters confined to land. |
| Small, metal mining operations | All operations confined to land, no toxic materials utilized in recovery operations. |
| Swimming pool discharges | Where adequate dilution exists or where beneficial uses are not affected. |
| Food processing wastes spread on land | Where an operating/maintenance plan has been approved. |
| Construction | Where BMPs are used. |
| Agricultural commodity wastes | Small, seasonal and confined to land. |
| Industrial wastes utilized for soil amendments | Where industry certifies its nontoxic content and BMPs are used for application. |
| Timber harvesting | Operating under an approved timber harvest plan. |
| Minor hydro projects | Operating under water rights permit from State Water Resources Control Board or Department of Fish and Game agreement and no water quality impacts anticipated. |
| Irrigation return water (tail-water) | Operating to minimize sediment to meet Basin Plan turbidity objectives and to prevent concentrations of materials toxic to fish or wildlife. |
| Projects where application for Water Quality Certification is required | Where project (normally minor construction) is not expected to have a significant water quality effect and project complies with Dept. of Fish and Game agreements. |
| Septic tank/leachfield systems | Where project has county permit and county uses Board Guidelines. |

**Prohibitions**

The Porter-Cologne Water Quality Control Act allows the Regional Board to prohibit certain discharges.[14/] Prohibitions may be revised, rescinded, or adopted as necessary. The prohibitions applicable to 5A, 5B, and 5C are identified and described below. [NOTE: Costs incurred by any unit of local government for a new program or increased level of service for compliance with discharge prohibitions in the Basin Plan do not require reimbursement by the State per Section 2231 of the Revenue and Taxation Code, because the Basin Plan implements a mandate previously enacted by statute, Chapter 482, Statutes of 1969.]

1. Water Bodies

Water bodies for which the Regional Board has held that the direct discharge of wastes is inappropriate as a permanent disposal method include sloughs and streams with intermittent flow or limited dilution capacity. The direct discharge of municipal and industrial wastes into the following specific water bodies also has been prohibited, as noted:

American River, including Lake Natoma (from Folsom Dam to mouth)

Clear Lake

Folsom Lake

Fourteen Mile Slough at Stockton N.W. and Lincoln Village

Lake Berryessa

Middle Fork, Feather River (from Dellecker to Lake Oroville)

Lake Oroville

Sacramento Ship Channel and Turning Basin

Shasta Lake

Sugar Cut at Tracy

Thermalito Forebay and Afterbay

Tulloch Reservoir

Whiskeytown Reservoir

Willow Creek-Bass Lake in Madera County (the prohibition is for sewage effluent only)

In addition, discharge of municipal waste into the Sacramento River from its confluence with the Feather River to the Freeport Bridge shall be prohibited after 1 July 1978. Existing untreated discharges of combined waste from the City of Sacramento must be controlled by 1 January 1980. They will not be subject to the above prohibition but will be controlled by waste discharge requirements.

2. Leaching Systems

Discharge of wastes from new and existing leaching and percolation systems has been prohibited by the Regional Board in the following areas:

Amador City, Amador County (Adopted by Regional Board Order No. 73-129; effective as of 12/15/72)

Martell Area, Amador County (73-129; 12/15/72)

Shasta Dam Area Public Utilities District, Shasta County (73-129; 12/15/72)

Vallecito Area, Calaveras County (73-129; 12/15/72)

West Point Area, Calaveras County (73-129; 12/15/72)

Celeste Subdivision Area, Merced County (73-129; 12/15/72)

Snelling Area, Merced County (73-129; 12/15/72, and amended 74-126; 12/14/73)

North San Juan, Nevada County (74-123; 12/14/73)

Arnold Area, Calaveras County (74-124, 75-180; 12/14/73, 6/25/75)

Contra Costa County Sanitation District No. 15, Contra Costa County (74-125; 12/14/73)

Madera County Service Area No. 2, Bass Lake (74-127; 12/14/73)

Madera County Service Area No. 3, Parksdale (74-128; 12/14/73)

Coulterville County Service Area No. 1, Mariposa County (75-070; 3/21/75)

Midway Community Services District, Merced County (75-072; 3/21/75)

Adin Community Services District, Modoc County (75-272 11/21/75)

Fall River Mills, Community Services District, Shasta County (75-273; 11/21/75)

Bell Road Community, including Panorama and Pearl, Placer County (75-274; 11/21/75)

Nice and Lucerne, Lake County (76-58; 2/27/76)

Courtland Sanitation District, Sacramento County (76-59; 2/27/76)

Six-Mile Village, Calaveras County (76-60; 2/27/76)

Communities of Clearlake Highlands and Clearlake Park, Lake County (76-89; 3/26/76)

Taylorsville County Service Area, Plumas County (76-129; 5/28/76)

Community of South Lakeshore Assessment District, Lake County (76-215; 9/24/76)

Community of South Lakeshore Assessment District, Lake County (76-215; 9/24/76)

Anderson-Cottonwood Irrigation District, Community of Cottonwood, Shasta County (76-230; 10/22/76)

Daphnedale Area, Modoc County (76-231; 10/22/76)

Chico Urban Area, Butte County (90-126; 4/27/90)

3. Petroleum

**The Regional Board has prohibited the discharge of oil or any residuary product of petroleum to the waters of the State, except in accordance with waste discharge requirements or other provisions of Division 7, California Water Code.**

4. Vessel Wastes

**The Regional Board has prohibited the discharge of toilet wastes from the vessels of all houseboat rental businesses on Shasta Lake, Clear Lake, and the Delta.**

5. Pesticides

Effective immediately for molinate and thiobencarb and on 1 January 1991 for carbofuran, malathion and methyl parathion, the discharge of irrigation return flows containing these pesticides is prohibited unless the discharger is following a management practice approved by the Board. Proposed management practices for these pesticides will not be approved unless they are expected to meet the performance goals contained in the following table. Also, the management practices must ensure that discharges of thiobencarb to waters designated as municipal or domestic water supplies will comply with the 1.0 µg/l water quality objective for this pesticide. It is important to note that the performance goals in this timetable are interim in nature and while they are based on the best available information, they are not to be equated with concentrations that meet the water quality objectives. The intent of the performance goals is to bring concentrations being found in surface waters down to levels that approach compliance with the objectives. Future performance goals and numerical objectives will be set using the results of ongoing evaluations of the risks posed by these pesticides. Future performance goals may also be site-specific to take into consideration the additive impacts of more than one pesticide being present in a water body at the same time. The Board will reexamine the progress of the control effort for these pesticides in 1993 and will set performance goals intended to bring concentrations of these five pesticides into full compliance with all objectives by 1995.

Performance Goals[1] for Management Practices in $\mu g/l$

| Pesticide | YEAR 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|
| Carbofuran | D | 0.4 | 0.4 | R |
| Malathion | I | 0.1 | R | R |
| Molinate | 30.0 | 20.0 | 10.0 | R |
| Methyl parathion | D | 0.26 | 0.13 | R |
| Thiobencarb | 3.0 | 1.5 | R | R |

[1] Performance goals are daily maxima and apply to all waters designated as freshwater habitat.

D = No numerical goal - control practices under development

I = No numerical goal - sources of discharge to be identified by special study

R = The Regional Board will review the latest technical and economic information determine if the performance goal should be adjusted

6. San Joaquin River Subsurface Agricultural Drainage

Activities that increase the discharge of poor quality agricultural subsurface drainage are prohibited. (This is part of the San Joaquin River Subsurface Agricultural Drainage Policy discussed on pages IV-8 and IV-9)

**Guidelines**

The Regional Board has adopted guidance for certain types of dischargers which is designed to reduce the possibility that water quality will be impaired. The Regional Board may still impose discharge requirements. Currently, the following Guidelines apply to sub-basins 5A, 5B, and 5C:

1. Wineries

This Guideline contains criteria for protecting beneficial uses and preventing nuisance from the disposal to land of stillage wastes.

2. Erosion and Sedimentation

This Guideline identifies practices to be implemented by local government to reduce erosion and sedimentation from construction activities.

3. Small Hydroelectric Facilities

This Guideline specifies measures to protect water quality from temperature, turbidity, and dissolved oxygen effects from the construction and operation of small hydroelectric facilities.

4. Disposal from Land Developments

This Guideline contains criteria for the siting of septic tanks, sewer lines, leach fields, and seepage pits to protect water quality.

5. Mining

This Guideline identifies actions that the Regional Board takes to address the water quality problems associated with mining. It requires owners and operators of active mines to prepare plans for closure and reclamation, but it does not specify any practices or criteria for mine operators.

All of the Guidelines are in the Appendix.

**Nonpoint Source Action Plans**

Section 208 of the 1972 Amendments to the federal Clean Water Act resulted in monies being made available to states to address nonpoint source problems. The Regional Board used 208 grant funds to develop its mining and erosion/sedimentation guidelines, among other things. It also encouraged local governments to make use of the 208 program. As a result, several counties in the sub-basins developed action plans to control nonpoint source problems which affected them. The Regional Board action plans are described in Table IV-2.

TABLE IV-2
NONPOINT SOURCE ACTION PLANS

| LOCATION | RECOMMENDED ACTION |
|---|---|
| Shasta County | Best Management Practices (BMPs) for control of erosion from land development (adopted 1980) |
| Nevada County | BMPs for erosion and individual wastewater disposal systems (adopted 1980) |
| Placer County | BMPs for erosion and installation of individual wastewater disposal systems (adopted 1980) |
| Lake County | BMPs for erosion and creek bed management (adopted 1979) |
| Communities of Paradise and Magalia (Butte County) | BMPs for wastewater management (adopted 1979) |
| Solano County | BMPs for surface water runoff (adopted 1979) |
| Upper Putah Creek Watershed (Lake, Napa Counties) | Strategies and recommendations for addressing problems from geothermal development, abandoned mines, and individual wastewater disposal systems (adopted 1981) |
| Fall River (Shasta County) | BMPs for livestock grazing and individual wastewater disposal systems (adopted 1982) |
| Plumas County | BMPs for erosion control (adopted 1980) |
| Mariposa County | BMPs for individual wastewater disposal systems for area north of the community of Mariposa; BMPs for erosion and sedimentation in the Stockton Creek Watershed (adopted 1979) |
| | Lake Yosemite Area (Merced County) -- BMPs for individual wastewater disposal systems (adopted 1979) |

# ACTIONS RECOMMENDED FOR IMPLEMENTATION BY OTHER ENTITIES

Consistent with the Porter-Cologne Water Quality Control Act, the Basin Plan may identify control actions recommended for implementation by agencies other than the Regional Board.[15/]

## Recommended for Implementation by the State Water Resources Control Board

**Interbasin Transfer of Water**

Before granting new permits for water storage or diversion which involves interbasin transfer of water, the State Board should require the applicant to evaluate the alternatives listed below. Permits should not be approved unless the alternatives have been thoroughly investigated and ruled out for social, environmental, or economic reasons.

1. In situations where wastewater is discharged to marine waters without intervening beneficial use (for example, the San Francisco Bay Area and most of Southern California), increase the efficiency of municipal, industrial, and agricultural water use.

2. Make optimum use of existing water resource facilities.

3. Store what would otherwise be surplus wet-weather Delta outflows in off-stream reservoirs.

4. Conjunctively use surface and ground waters.

5. Give careful consideration to the impact on basin water quality of inland siting of power plants.

6. Make maximum use of reclaimed water while protecting public health and avoiding severe economic penalties to a particular user or class of users.

**Trans-Delta Water Conveyance**

The State Board should adopt the position that those proposing trans-Delta water conveyance facilities must clearly demonstrate the following, if such a facility is constructed:

1. Protection of all beneficial uses in the Delta that may be affected by such a facility;

2. Protection of all established water quality objectives that may be affected by such a facility; and,

3. Adherence to the six alternatives previously identified for Interbasin Transfer of Water.

**Water Quality Planning**

A core planning group should be established within the staff of the State Board, which has the responsibility to integrate the statewide planning of water quality and water resources management.

**Water Intake Studies**

The State Board should coordinate studies to assess the costs and benefits of moving planned diversions from the eastern side of the Central Valley to points further west, probably to the Delta, to allow east side waters to flow downstream for uses of fishery enhancement, recreation, and quality control. Specific study items should include:

1. Possible intake relocations;

2. Conveyance and treatment required to accommodate such relocations;

3. Direct and indirect (including consumer and environmental) costs and benefits of relocation; and,

4. Institutional problems.

The State Board should request voluntary participation in the studies by agencies planning diversions, but should take appropriate action through its water rights authority if such participation cannot be obtained. At a minimum, participation would be required of the San Francisco Water Department and East Bay Municipal Utility District.

**Subsurface Agricultural Drainage**

1. As a last resort and where the withholding of irrigation water is the only means of achieving significant improvements in water quality, the Regional Board will consider requesting that the State Water Resources Control Board (SWRCB) use its water rights authority to preclude the supplying of water to specific lands

2. The SWRCB should require all water agencies in the San Joaquin Basin, regardless of size, to submit an "informational" report on water conservation.

3. The SWRCB should work jointly with the Regional Board in securing compliance with the 2 $\mu$g/l selenium objective for managed-wetlands in the Grassland area.

4. The SWRCB give first priority to the use of the Water Conservation and Water Quality Bond Law of 1986 funds for subsurface drainage pollutant control projects in the San Joaquin Basin, especially in those areas that contribute selenium to the San Joaquin River.

5. The SWRCB should also consider utilizing State Assistance Program Grant funds to implement a cost share program to install a number of flow monitoring stations within the Grassland area to assist in better defining the movement of pollutants through the area.

6. The SWRCB should also consider declaring the drainage problem area in the San Joaquin Basin a priority nonpoint source problem in order to make US Environmental Protection Agency nonpoint source control funding available to the area.

## Recommended for Implementation by Other Agencies

**Water Resources Facilities**

1. Consideration should be given to the construction of a storage facility to store surplus wet-weather Delta outflows. Construction should be contingent on studies demonstrating that some portion of wet-weather Delta outflow is truly surplus to the Bay-Delta system.

2. Consideration should be given to the use of excess capacity in west San Joaquin Valley conveyances, or of using a new east valley conveyance to:
   a. Augment flows and improve water quality in the San Joaquin River and southern Delta with the goal of achieving water quality as described in Table IV-3.

TABLE IV-3

| | TYPE OF YEAR[1] | | | |
|---|---|---|---|---|
| TDS MG/L | CRITICAL[2] | DRY[3] | NORMAL | WET[4] |
| Maximum 3-day (arith. avg.) | 500 | 500 | 500 | 500 |
| Maximum (annual avg.) | 385 | 385 | 385 | 285 |
| Maximum May-Sep (arith. avg.) | 300 | 250 | 250 | 250 |
| Maximum 3-day May-Sep (arith. avg.) | 450 | 350 | 350 | 350 |

1 Relative to unimpaired runoff to Delta based on 1922-1971 period. See definitions in Figure III-2.
2 Less than 57%, or less than 70% when preceding year critical.
3 Less than 70%, or less than 90% when preceding year critical.
4 Greater than 125%.

   b. Prevent further ground water overdrafts and associated quality problems.

**Agricultural Drainage Facilities**

Facilities should be constructed to convey agricultural drain water from the San Joaquin and Tulare Basins. It is the policy of the Regional Board to encourage construction. The discharge must comply with water quality objectives of the receiving water body.

**Subsurface Agricultural Drainage**

1. If fragmentation of the parties that generate, handle and discharge agricultural subsurface drainage jeopardizes the achievement of water quality objectives, the Regional Board will consider petitioning the Legislature for the formation of a regional drainage district.

2. The Legislature should consider putting additional bond issues before the voters to provide low interest loans for agricultural water conservation and water quality projects and incorporating provisions that would allow recipients to be private landowners, and that would allow irrigation efficiency improvement projects that reduce drainage discharges to be eligible for both water conservation funds and water quality facilities funds.

3. The San Joaquin Valley Drainage Program should investigate the alternative of a local San Joaquin Basin drain to move the existing discharge point for poor quality agricultural subsurface drainage to a location where its impact on water quality is less. The San Joaquin Valley Drainage Program should also investigate the plan to use the San Luis Drain (the Zahm-Sansoni Plan) as the first phase of this alternative.

4. The US Bureau of Reclamation should give the districts and growers subject to this program first priority in their water conservation loan program.

## CONTINUOUS PLANNING FOR IMPLEMENTATION OF WATER QUALITY CONTROL

Knowledge of water quality problems changes constantly. Because of this, the control actions and the water quality objectives that implementation of the actions attempts to achieve must be regularly evaluated for their effectiveness in protecting beneficial uses. As warranted, the actions, water quality objectives, or designated beneficial uses may be changed to ensure the proper protection and enhancement of the appropriate beneficial uses. The Regional Board has a continuous planning

process to serve these functions and maintain its water quality regulatory program.

The Regional Board is periodically apprised of water quality problems in Basins 5A, 5B, and 5C, but the major review of water quality is done every three years as part of the Triennial Review (*TR*) of water quality standards.

During the TR, the Regional Board holds a public hearing to receive comments on actual and potential water quality problems. A workplan is prepared which identifies the control actions that will be implemented over the succeeding three years to address the problems. The actions may include or result in revision of the Basin Plan's water quality standards if that is an appropriate problem remedy. Until such time that a basin plan is revised, the TR also serves to reaffirm existing standards.

The control actions that are identified through the TR process are incorporated into the Basin Plan to meet requirements to describe actions (to achieve objectives) and a time schedule of their implementation as called for in the Water Code, Section 13242(a) and (b). The actions recommended in the most recent TR are described in the following section.

## ACTIONS AND SCHEDULE TO ACHIEVE WATER QUALITY OBJECTIVES

The actions identified below are what the Regional Board currently expects to implement over the fiscal year (FY) period 1987/1988 through 1989/1990. The problems that the actions respond to were identified as a result of the Regional Board's 1987 Triennial Review. The actions and schedules assume that the Regional Board has available to it a close approximation of the mix and level of resources it had in FY 1987/1988. The actions are identified by major water quality problem categories.

### Agricultural Drainage Discharges in the San Joaquin River Basin

Water quality in the San Joaquin River has degraded greatly since the late 1940s. Salt concentrations in the River near Vernalis have doubled since that time. Two main causes have been reservoir development on the east side tributaries and upper basin for agricultural development. This has greatly increased the concentration of salt, boron, selenium, molybdenum and other trace elements in the River. This water quality degradation was recognized in the 1975 Basin Plan and the Lower San Joaquin River was classified as a Water Quality Limited Segment. At that time, it was envisioned that a Valley-wide Drain would be developed and these subsurface drainage water flows would then be discharged outside the Basin, thus improving River water quality. However, present day development is looking more toward a regional solution to the drainage water discharge problem rather than a valley-wide drain.

Because of the need to manage salt and other pollutants in the River, the Regional Board will begin developing a Regional Drainage Water Disposal Plan for the Basin. The development began in FY 87/88 with Basin Plan amendments to be considered by the Board in FY 88/89. The amendment development process will include review of beneficial uses, establishment of water quality objectives, and preparation of a regulatory plan, including a full implementation plan. The regulatory plan will emphasize achieving objectives through reductions in drainage volumes and pollutant loads through best management practices and other on-farm methods. Additional regulatory steps will be considered based on achievements of water quality goals and securing of adequate resources.

Per the amendment to the Basin Plan for San Joaquin River subsurface agricultural drainage, approved by the State Board in Resolution No. 89-88 and incorporated herein, the following actions will be implemented.

1. Upslope irrigations and water facility operators whose actions contribute to subsurface drainage flows will participate in the program to control discharges beginning in January 1989.

2. The Regional Board will reconsider water quality objectives for selenium and boron for Mud Slough (north), Salt Slough and the San Joaquin River, Sack Dam to Vernalis and water quality objectives for salinity for the San Joaquin River in 1992.

3. Annual submittal and approval of drainage operations plans (DOP) will be required from all those discharging or contributing to the generation of agricultural subsurface drainage beginning in 1989.

4. Best management practices, principally water conservation measures, are applicable to the control of agricultural subsurface drainage.

5. Waste discharge requirements may be used to control agricultural subsurface drainage discharges containing toxic trace elements, if water quality objectives are not achieved by the following compliance dates:

   January 1989 -- Molybdenum

   October 1989 -- Selenium:
   Water supply channels for Grassland Water District and state and federal refuges.

   October 1991 -- Selenium and boron:
   San Joaquin River, mouth of the Merced River to Vernalis

   October 1993 -- Selenium and boron:
   Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of the Merced River.

6. Milestones to the achievement of water quality objectives for selenium will be used.

7. Public and private managed-wetlands will participate in the program to achieve water quality objectives.

8. Evaporation basins in the San Joaquin Basin will be required to meet minimum design standards, have waste discharge requirements and be part of a regional plan to control agricultural subsurface drainage.

9. The Regional Board staff will prepare a study plan by 1 March 1989 that will identify the information needed to reconsider selenium and boron objectives in 1992.

## Assessmentof Biotoxicity of Major Point and Nonpoint Source Dischargesin the Sacramento River and San JoaquinRiver Basins

In addition to numerical water quality objectives for toxicity, the Basin Plan contains a narrative water quality objective that requires all surface waters to "...be maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses to human, plant, animal, and aquatic life." To check for compliance with this objective, the Regional Board initiated a biotoxicity monitoring program to assess toxic impacts from point and nonpoint sources in FY 86-87.

The Regional Board will continue to assess compliance with the narrative water quality objective by imposing the monitoring requirement on dischargers, as appropriate. In addition, an EPA grant has been obtained to define toxicity inputs from NPDES permittees discharging to the Sacramento and American Rivers between Walnut Grove and Nimbus Dam. The use of biotoxicity tests will be expanded in FY 88/89, with a contract with the University of California at Davis as part of an ambient monitoring program to assess point and nonpoint source toxicity. The Regional Board will continue to try to obtain program funding beyond FY 88/89.

## Acid Mine Drainagefrom Abandoned Mines in the SacramentoRiver Basin

Available information suggests that mines are by far the largest contributors of copper, zinc, and cadmium to the Sacramento River Basin. These metals have been implicated as causing problems in Delta biota, although the cause and effect relationship remains unclear. Copper has been shown to be a problem in the Bay. Problems in the Bay/Delta may be related to total loadings and dissolved concentration effects because the Delta tends to act as a sink for these pollutants. Upstream discharges of these metals from mines cause severe impairments in receiving waters.

Under present projected funding levels for the next three years, the Board can expect to continue to address problems at Iron Mountain Mine, Walker Mine, Mammoth Mine, Keystone Mine, Afterthought Mine, Greenhorn Mine, and others. Data will also be collected to refine the present loading estimates in the Basins. Additional biotoxicity testing will be done in the Sacramento River and in the Delta to help assess the appropriateness of existing water quality objectives in the River and to begin to assess whether the Delta is affected by these metals.

## Mercury Discharges in the Sacramento River and San Joaquin River Basins

Mercury problems are evident region-wide. The main concern with mercury is that, like selenium, it bioaccumulates in aquatic systems to levels that are harmful to fish and their predators. Health advisories have been issued which recommend limiting consumption of fish taken from the Bay/Delta, Clear Lake, Lake Berryessa, and Marsh Creek Reservoir. Other water bodies approach or exceed National Academy of Science (NAS) and/or U.S. Food and Drug Administration (FDA) guidelines for wildlife and human protection, respectively. In addition to these concerns, fish eating birds taken from some bodies of water in the Basins have levels of mercury that can be expected to result in toxic effects. Bird kills from mercury also have been documented in Lake Berryessa. (There is also concern for birds in the Delta, but no studies have been completed.) The Regional Board has done a preliminary assessment of the mercury situation in the Central Valley Region and concluded that the problem is serious and remedies will be complex and expensive.

The short-term strategy is to concentrate on correcting problems at upstream sites while monitoring the Delta to see whether upstream control activities measurably benefit the Delta. Staff will support efforts to fund the detailed studies necessary to define assimilative capacity and to fully define uptake mechanisms in the biota.

Under present projected resource levels for the next three years, staff will complete an abatement study on Clear Lake and take steps to implement recommendations. A few sites around Lake Berryessa and Davis Creek Reservoir will be investigated for potential source control activities. Abatement remedies will continue to be sought at Mt. Diablo Mine and other sites receiving regulatory attention. A minimum effort will continue to define problem areas in the Sierra Nevada Range. Staff will also pursue characterization efforts in the Delta.

## Pesticide Discharges from Nonpoint Sources

The control of pesticide discharges to surface waters from nonpoint sources will be achieved primarily by the development and implementation of management practices that minimize or eliminate the amount discharged. The Board will use water quality monitoring results to evaluate the effectiveness of control efforts and to help prioritize control efforts.

Regional Board monitoring will consist primarily of chemical analysis and biotoxicity testing of major water bodies receiving irrigation return flows. The focus will be on pesticides with use patterns and chemical characteristics that indicate a high probability of entering surface waters at levels that may impact beneficial uses. Board staff will advise other agencies that conduct water quality and aquatic biota monitoring of high priority chemicals, and will review monitoring data developed by these agencies. Review of the impacts of "inert" ingredients contained in pesticide formulations will be integrated into the Board's pesticide monitoring program.

When a pesticide is detected more than once in surface waters, investigations will be conducted to identify sources. Priority for investigation will be determined through consideration of the following factors: toxicity of the compound, use patterns and the number of detections. These investigations may be limited to specific watersheds where the pesticide is heavily used or local practices result in unusually high discharges. Special studies will also be conducted to determine pesticide content of sediment and aquatic life when conditions warrant. Other agencies will be consulted regarding prioritization of monitoring projects, protocol, and interpretation of results.

To ensure that new pesticides do not create a threat to water quality, the Board, either directly or through the State Water Resources Control Board,

will review the pesticides that are processed through the Department of Food and Agriculture's (DFA) registration program. Where use of the pesticide may result in a discharge to surface waters, the Board staff will make efforts to ensure that label instructions or use restrictions require management practices that will result in compliance with water quality objectives. When the Board determines that despite any actions taken by DFA, use of the pesticide may result in discharge to surface waters in violation of the objectives, the Board will take regulatory action, such as adoption of a prohibition of discharge or issuance of waste discharge requirements to control discharges of the pesticide. Monitoring may be required to verify that management practices are effective in protecting water quality.

The Board will notify pesticide dischargers through public notices, educational programs and the Department of Food and Agriculture's pesticide regulatory program of the water quality objectives related to pesticide discharges. Dischargers will be advised to implement management practices that result in full compliance with these objectives by 1 January 1993, unless required to do so earlier. (Dischargers of carbofuran, malathion, methyl parathion, molinate and thiobencarb must meet the requirements detailed in the Prohibitions section.) During this time period, dischargers will remain legally responsible for the impacts caused by their discharges.

The Board will conduct reviews of the management practices being followed to verify that they produce discharges that comply with water quality objectives. It is anticipated that practices associated with one or two pesticides can be reviewed each year. Since criteria, control methods and other factors are subject to change, it is also anticipated that allowable management practices will change over time, and control practices for individual pesticides will have to be reevaluated periodically.

Public hearings will be held at least once every two years to review the progress of the pesticide control program. At these hearings, the Board will

- review monitoring results and identify pesticides of greatest concern,
- review changes or trends in pesticide use that may impact water quality,
- consider approval of proposed management practices for the control of pesticide discharges,
- set the schedule for reviewing management practices for specific pesticides, and
- consider enforcement action.

After reviewing the testimony, the Board will place the pesticides into one of the following three classifications. When compliance with water quality objectives and performance goals is not obtained within the timeframes allowed, the Board will consider alternate control options, such as prohibition of discharge or issuance of waste discharge requirements.

1. Where the Board finds that pesticide discharges pose a significant threat to drinking water supplies or other beneficial uses, it will request DFA to act to prevent further impacts. If DFA does not proceed with such action(s) within six months of the Board's request, the Board will act within a reasonable time period to place restrictions on the discharges.

2. Where the Board finds that currently used discharge management practices are resulting in violations of water quality objectives, but the impacts of the discharge are not so severe as to require immediate changes, dischargers will be given three years, with a possibility of three one year time extensions depending on the circumstances involved, to develop and implement practices that will meet the objectives. During this period of time, dischargers may be required to take interim steps, such as meeting Board established performance goals to reduce impacts of the discharges. Monitoring will be required to show that the interim steps and proposed management practices are effective.

3. The Board may approve the management practices as adequate to meet water quality objectives. After the Board has approved specific

management practices for the use and discharge of a pesticide, no other management practice may be used until it has been reviewed by the Board and found to be equivalent to or better than previously approved practices. Waste discharge requirements will be waived for irrigation return water per Resolution No. 82-036 if the Board determines that the management practices are adequate to meet water quality objectives and meet the conditions of the waiver policy. Enforcement action may be taken against those who do not follow management practices approved by the Board.

Carbofuran, malathion, methyl parathion, molinate and thiobencarb have been detected in surface waters at levels that impact aquatic organisms. Review of management practices associated with these materials is under way and is expected to continue for at least another two years. A timetable of activities related to these pesticides is at the end of the Prohibitions section. A detailed assessment of the impacts of these pesticides on aquatic organisms is also being conducted and water quality objectives will be adopted for these materials by the State or Regional Board by the end of 1993.

In conducting a review of pesticide monitoring data, the Board will consider the cumulative impact if more than one pesticide is present in the water body. This will be done by initially assuming that the toxicities of pesticides are additive. This will be evaluated separately for each beneficial use using the following formula:

$$\frac{C_1}{O_1} + \frac{C_2}{O_2} + \cdots + \frac{C_i}{O_i} = S$$

Where:

C = The concentration of each pesticide .

O = The water quality objective or criterion for the specific beneficial use for each pesticide present, based on the best available information. Note that the numbers must be acceptable to the Board and performance goals are not to be used in this equation.

S = The sum. A sum exceeding one (1.0) indicates that the beneficial use may be impacted.

The above formula will not be used if it is determined that it does not apply to the pesticides being evaluated. When more than one pesticide is present, the impacts may not be cumulative or they may be additive, synergistic or antagonistic. A detailed assessment of the pesticides involved must be conducted to determine the exact nature of the impacts.

For most pesticides, numerical water quality objectives have not been adopted. EPA criteria and other guidance are also extremely limited. Since this situation is not likely to change in the near future, the Board will use the best available technical information to evaluate compliance with the narrative objectives. Where valid testing has developed 96 hour LC50 values for aquatic organisms (the concentration that kills one half of the test organisms in 96 hours), the Board will consider one tenth of this value for the most sensitive species tested as the upper limit (daily maximum) for the protection of aquatic life. Other available technical information on the pesticide (such as Lowest Observed Effect Concentrations and No Observed Effect Levels), the water bodies and the organisms involved will be evaluated to determine if lower concentrations are required to meet the narrative objectives.

To ensure the best possible program, the Board will coordinate its pesticide control efforts with other agencies and organizations. Wherever possible, the burdens on pesticide dischargers will be reduced by working through the DFA or other appropriate regulatory processes. The Board may also designate another agency or organization as the responsible party for the development and/or implementation of management practices, but it will retain overall review and control authority. The Board will work with water agencies and others whose activities may influence pesticide levels to minimize concentrations in surface waters.

Since the discharge of pesticides into surface waters will be allowed under certain conditions, the Board will take steps to ensure that this control program is

conducted in compliance with the federal and state antidegradation policies. This will primarily be done as pesticide discharges are evaluated on a case by case basis.

## Dredging in the Sacramento River and San Joaquin River Basins

Large volumes of sediment are transported in the waters of the Sacramento and San Joaquin Rivers which drain the Central Valley. The average annual sediment load to San Francisco Bay from these two rivers is estimated to be 8 million cubic yards. Dredging and riverbank protection projects are ongoing, continuing activities necessary to keep ship channels open, prevent flooding, and control riverbank erosion. The Delta, with over 700 miles of waterways, is a major area of activity. At present, the Corps is overseeing the conduct and planning of rehabilitation work along 165 miles of levees surrounding 15 Delta islands. In addition, virtually all of the Delta levees have been upgraded by island owners or reclamation districts. The magnitude of recent operations, such as the Stockton and Sacramento Ship Channel Deepening Projects and Sacramento River Bank Protection Project, is discussed in recent U.S. Army Corps of Engineers Reports. For example, the Corps removes over 10 million cubic yards of sediment yearly from the Sacramento River. If the Sacramento River Deep Water Ship Channel is widened and deepened as proposed currently, 25 million cubic yards of bottom material will be removed from the river during the 5-year project.

Environmental impacts of dredging operations and materials disposal include temporary dissolved oxygen reduction, increased turbidity and, under certain conditions, the mobilization of toxic chemicals and release of biostimulatory substances from the sediments. The direct destruction and burial of spawning gravels and alteration of benthic habitat may be the most severe impacts. The existing regulatory process must be consistently implemented to assure protection of water quality and compliance with the certification requirements of Section 401 of the Federal Clean Water Act.

In FY 88/89, staff will produce a set of guidelines for regulation of dredging and riverbank protection projects.

## Nitrate Pollution of Ground Water in the Sacramento River and San Joaquin River Basins

Since 1980, over 200 municipal supply wells have been closed in the Central Valley because of nitrate levels exceeding the State's 45 mg/l drinking water standard. Staff has submitted proposals to assess the extent of the problem and explore possible regulatory responses, but without success. The increasing population growth in the Valley is expected to accelerate the problem's occurrence in the years ahead. Staff will continue efforts to obtain study funds.

## Temperature and Turbidity Increases Below Large Water Storage and Diversion Projects in the Sacramento River Basin

The storage and diversion of water for hydroelectric and other purposes can impact downstream beneficial uses because of changes in temperature and the introduction of turbidity. There are several large facilities in the Basin which have had a history of documented or suspected downstream impairments.

Where problems have been identified, the staff will work with operators to prepare management agency agreements or, if necessary, waste discharge requirements to remedy the problems. Where problems are suspected, the staff will seek additional monitoring.

## Beneficial Use Impairments from Logging, Construction, and Associated Activities

The Board has regulatory responsibility to prevent adverse water quality impacts from timber harvest activities. Impacts usually consist of temperature and turbidity effects caused by logging and associated activities in or next to streams. The staff participates on an interagency review team and performs a limited number of field inspections, both before and after harvest, in an attempt to obtain compliance with and enforce best management practices. The Board may initiate enforcement action where water quality is degraded or threatened, but the volume of harvest plans annually submitted for review (i.e., approximately

500) and the geographical spread (logging occurs in more than 20 counties in the Region) results in high probability of staff not being aware of timber operations which cause problems. Limited staff time also precludes substantive interchange with Department of Forestry and timber industry personnel during the planning phase of a timber operation. This interchange would lead to more timely identification of water quality concerns and development of appropriate mitigations.

The Regional Board will consider adoption of a Basin Plan prohibition on the discharge of soil, silt, debris, and other materials from logging in quantities deleterious to beneficial uses. This prohibition would improve access to sites where water quality deterioration (from logging) is likely. It would also give the Regional Board the flexibility of using the administrative civil liability enforcement option.

# ESTIMATED COSTS OF AGRICULTURALWATER QUALITY CONTROL PROGRAMS AND POTENTIAL SOURCES OF FINANCING

## SAN JOAQUIN RIVER SUBSURFACE AGRICULTURAL DRAINAGE CONTROL PROGRAM

The estimates of capital and operational costs to achieve the selenium objective for the San Joaquin River and wildlife areas range from approximately four to nine million dollars per year (1988 dollars). A more detailed estimate is given in Table 6, Exhibit A, of Resolution No. 88-195.

Potential funding sources include:

1. Private financing by individual sources.
2. Bonded indebtedness or loans from governmental institutions.
3. Surcharge on water deliveries to lands contributing to the drainage problem.
4. Ad Valorem tax on lands contributing to the drainage problem.
5. Taxes and fees levied by a district created for the purpose of drainage management.
6. State or federal grants or low-interest loan programs.
7. Single-purpose appropriations from federal or State legislative bodies.

## PESTICIDE CONTROL PROGRAM

Based on an average of $15 per acre per year for 500,000 acres of land planted to rice and an average of $5 per acre per year for the remaining 3,500,000 acres of irrigated agriculture in Basins 5A, 5B, and 5C, the total annual cost to agriculture is estimated at $25,000,000. Financial assistance in complying with this program may be obtainable through the U.S.D.A. Agricultural Stabilization and Conservation Service and technical assistance is available from the University of California Cooperative Extension Service and the U.S.D.A. Soil Conservation Service.

# V. SURVEILLANCE AND MONITORING

This chapter describes the methods and programs that the Regional Board uses to acquire water quality information. Accumulation of data is a basic need of a water quality control program and is required by both the Clean Water Act and the Porter-Cologne Water Quality Control Act.

As discussed previously, the protection, attainment, and maintenance of beneficial uses occurs as part of a continuing cycle of identifying beneficial use impairments, applying control measures, and assessing program effectiveness. The Regional Board surveillance and monitoring program provides for the collection, analysis, and distribution of the water quality data it needs to sustain its control program. Generally, surveillance refers to the acquisition or use of data for purposes of identification or characterization of impairments; monitoring refers to the acquisition or use of data for purposes of determining compliance or assessing control effectiveness. Under ideal circumstances, the Regional Board surveillance and monitoring program would produce information on the frequency, duration, source, extent, and severity of beneficial use impairments. In attempting to meet this goal, the Regional Board relies upon a variety of measures to obtain information. The current surveillance and monitoring program consists primarily of seven elements:

**Surface Water**

The major surface water quality information network for Sub-basins 5A, 5B, and 5C is made up of existing ambient fresh and estuarine water column sampling stations selected from those used by the California Department of Water Resources in their surface water quality monitoring program. Areas not covered are supplemented by other federal, state or local data on water column sampling.

The State Water Resources Control Board manages its own Toxic Substances Monitoring (*TSM*) program to collect and analyze fish tissue for the presence of bioaccumulative chemicals. The Regional Board participates in the selection of sampling sites for its basins and annually is provided with a report of the testing results.

**Ground Water**

Ground water monitoring is conducted at points that are representative of ground water pollution and in areas of high use of ground water. The effort also relies upon information generated as part of state and federal programs' ground water surveillance efforts.

**Self-Monitoring**

Self-monitoring reports are normally submitted by the discharger on a monthly or quarterly basis as required by the permit conditions. They are routinely reviewed by Regional Board staff.

**Compliance Monitoring**

Compliance monitoring determines permit compliance, validates self-monitoring reports, and provides support for enforcement actions. Discharger compliance monitoring and enforcement actions are the responsibility of the Regional Board staff.

**Complaint Investigation**

Complaints from the public or governmental agencies regarding the discharge of pollutants or creation of nuisance conditions are investigated and pertinent information collected.

**Intensive Surveys**

Intensive water quality surveys provide detailed data to locate and evaluate violations of receiving water standards and to make waste load allocations. They usually involve localized, frequent and/or continuous sampling. These surveys are specially designed to evaluate problems in potential water quality limited segments, areas of special biological significance or hydrologic units requiring sampling in addition to the routine collection efforts.

**Aerial Surveillance**

Low-altitude flights are conducted primarily to observe variations in field conditions, gather

photographic records of discharges, and document variations in water quality.

**San Joaquin River Subsurface Agricultural Drainage Monitoring**

1. The dischargers will monitor discharge points and receiving waters for constituents of concern and flow (discharge points only).

2. The Regional Board will continue to monitor the major discharges, tributaries and the San Joaquin River.

3. The Regional Board will continue its investigations into pollutant transport mechanisms and sinks.

4. The Regional Board will inspect discharger monitoring and treatment facilities.

5. The Regional Board, in cooperation with other agencies, will regularly assess water conservation achievements and compile cost and drainage reduction effectiveness information.

The Regional Board's surveillance and monitoring efforts include different types of sample collection and analysis. Surface water surveillance may involve analyses of water, sediment, or tissue samples and ground water surveillance often incudes collection and analysis of soil samples. Soil, water, and sediment samples are analyzed via standard, EPA approved, laboratory methods. The Regional Board addresses quality assurance through bid specifications and individual sampling actions such as submittal of split, duplicate, or spiked samples and lab inspections.

Although surveillance and monitoring efforts have traditionally relied upon measurement of key chemical/physical parameters (e.g., metals, organic and inorganic compounds, bacteria, temperature, and dissolved oxygen) as indicators of water quality, there is increasing recognition that close approximation of water quality impacts requires the use of biological indicators. This is particularly true for regulation of toxic compounds in surface waters where standard physical/chemical measurement may be inadequate to indicate the wide range of substances and circumstances able to cause toxicity to aquatic organisms. The use of biological indicators to identify or measure toxic discharges is often referred to as *biotoxicity testing*. EPA has issued guidelines and technical support material for biotoxicity testing. A key use of the method is to monitor for compliance with narrative water quality objectives or permit requirements that specify that there is to be no discharge of toxic materials in toxic amounts. The Regional Board will continue to use biotoxicity procedures and testing in its surveillance and monitoring program.

# FOOTNOTES

1. Water Code Section 13050(j)
2. 40 CFR 130, 131
3. Water Code Section 13050(f)
4. 40 CFR 131.20
5. Water Code Section 13050(h)
6. Water Code Section 13241
7. Water Code Section 13050(j)
8. Water Code Section 13242
9. Water Code Section 13141
10. 40 CFR 130, et seq.
11. 40 CFR 131.12
12. Public Resources Code Section 4514.3
13. Water Code Section 13269
14. Water Code Section 13243
15. Water Code Section 13242(a)

# INDEX

# APPENDIX

# APPENDIX DIRECTORY



*Appendix items are paginated by: item number/item page/item total pages.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

# STATE POLICY FOR WATER QUALITY CONTROL

## I. FOREWORD

To assure a comprehensive statewide program of water quality control, the California Legislature by its adoption of the Porter-Cologne Water Quality Control Act in 1969 set forth the following statewide policy:

> The people of the state have a primary interest in the conservation, control, and utilization of the water resources, and the quality of all the waters shall be protected for use and enjoyment.
>
> Activities and factors which may affect the quality of the waters shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.
>
> The health, safety, and welfare of the people requires that there be a statewide program for the control of the quality of all the waters of the state. The state must be prepared to exercise its full power and jurisdiction to protect the quality of waters from degradation.
>
> The waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations. Factors of precipitation, topography, population, recreation, agriculture, industry, and economic development vary from region to region. The statewide program for water quality control can be most effectively administered regionally, within a framework of statewide coordination and policy.

To carry out this policy, the Legislature established the State Water Resources Control Board and nine California Regional Water Quality Control Boards as the principal state agencies with primary responsibilities for the coordination and control of water quality. The State Board is required pursuant to legislative directives set forth in the California Water Code (Division 7, Chapter 3, Article 3, Sections 13140 Ibid) to formulate and adopt state policy for water quality control consisting of all or any of the following:

---

Adopted by the State Water Resources Control Board by motion of July 6, 1972.

I. (continued)

Water quality principles and guidelines for long-range resource planning, including groundwater and surface water management programs and control and use of reclaimed water.

Water quality objectives at key locations for planning and operation of water resource development projects and for water quality control activities.

Other principles and guidelines deemed essential by the State Board for water quality control.

## II. GENERAL PRINCIPLES

The State Water Resources Control Board hereby finds and declares that protection of the quality of the waters of the State for use and enjoyment by the people of the State requires implementation of water resources management programs which will conform to the following general principles:

1. Water rights and water quality control decisions must assure protection of available fresh water and marine water resources for maximum beneficial use.

2. Municipal, agricultural, and industrial wastewaters must be considered as a potential integral part of the total available fresh water resource.

3. Coordinated management of water supplies and wastewaters on a regional basis must be promoted to achieve efficient utilization of water.

4. Efficient wastewater management is dependent upon a balanced program of source control of environmentally hazardous substances[1/], treatment of wastewaters, reuse of reclaimed water, and proper disposal of effluents and residuals.

5. Substances not amenable to removal by treatment systems presently available or planned for the immediate future must be prevented from entering sewer systems

1/ Those substances which are harmful or potentially harmful even in extremely small concentration to man, animals, or plants because of biological concentration, acute or chronic toxicity, or other phenomenon.

II. 5. (continued)

in quantities which would be harmful to the aquatic environment, adversely affect beneficial uses of water, or affect treatment plant operation. Persons responsible for the management of waste collection, treatment, and disposal systems must actively pursue the implementation of their objective of source control for environmentally hazardous substances. Such substances must be disposed of such that environmental damage does not result.

6. Wastewater treatment systems must provide sufficient removal of environmentally hazardous substances which cannot be controlled at the source to assure against adverse effects on beneficial uses and aquatic communities.

7. Wastewater collection and treatment facilities must be consolidated in all cases where feasible and desirable to implement sound water quality management programs based upon long-range economic and water quality benefits to an entire basin.

8. Institutional and financial programs for implementation of consolidated wastewater management systems must be tailored to serve each particular area in an equitable manner.

9. Wastewater reclamation and reuse systems which assure maximum benefit from available fresh water resources shall be encouraged. Reclamation systems must be an appropriate integral part of the long-range solution to the water resources needs of an area and incorporate provisions for salinity control and disposal of nonreclaimable residues.

10. Wastewater management systems must be designed and operated to achieve maximum long-term benefit from the funds expended.

11. Water quality control must be based upon latest scientific findings. Criteria must be continually refined as additional knowledge becomes available.

12. Monitoring programs must be provided to determine the effects of discharges on all beneficial water uses including effects on aquatic life and its diversity and seasonal fluctuations.

## III. PROGRAM OF IMPLEMENTATION

Water quality control plans and waste discharge requirements hereafter adopted by the State and Regional Boards under Division 7 of the California Water Code shall conform to this policy.

This policy and subsequent State plans will guide the regulatory, planning, and financial assistance programs of the State and Regional Boards. Specifically, they will (1) supersede any regional water quality control plans for the same waters to the extent of any conflict, (2) provide a basis for establishing or revising waste discharge requirements when such action is indicated, and (3) provide general guidance for the development of basin plans.

Water quality control plans adopted by the State Board will include minimum requirements for effluent quality and may specifically define the maximum constituent levels acceptable for discharge to various waters of the State. The minimum effluent requirements will allow discretion in the application of the latest available technology in the design and operation of wastewater treatment systems. Any treatment system which provides secondary treatment, as defined by the specific minimum requirements for effluent quality, will be considered as providing the minimum acceptable level of treatment. Advanced treatment systems will be required where necessary to meet water quality objectives.

Departures from this policy and water quality control plans adopted by the State Board may be desirable for certain individual cases. Exceptions to the specific provisions may be permitted within the broad framework of well established goals and water quality objectives.

STATE WATER RESOURCES CONTROL BOARD

RESOLUTION NO. 68-16

STATEMENT OF POLICY WITH RESPECT TO
MAINTAINING HIGH QUALITY OF WATERS IN CALIFORNIA

WHEREAS the California Legislature has declared that it is the policy of the State that the granting of permits and licenses for unappropriated water and the disposal of wastes into the waters of the State shall be so regulated as to achieve highest water quality consistent with maximum benefit to the people of the State and shall be controlled so as to promote the peace, health, safety and welfare of the people of the State; and

WHEREAS water quality control policies have been and are being adopted for waters of the State; and

WHEREAS the quality of some waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature;

NOW, THEREFORE, BE IT RESOLVED:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

3. In implementing this policy, the Secretary of the Interior will be kept advised and will be provided with such information as he will need to discharge his responsibilities under the Federal Water Pollution Control Act.

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the Secretary of the Interior as part of California's water quality control policy submission.

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 24, 1968.

Dated: October 28, 1968

Kerry W. Mulligan
Executive Officer
State Water Resources
Control Board

State of California
The Resources Agency

STATE WATER RESOURCES CONTROL BOARD

# WATER QUALITY CONTROL POLICY

# FOR THE

# ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA

MAY 1974

3/1/16

TABLE OF CONTENTS



* To be furnished upon request.

# WATER QUALITY CONTROL POLICY FOR THE ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA[1/]

## INTRODUCTION

The purpose of this policy is to provide water quality principles and guidelines to prevent water quality degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. Decisions on water quality control plans, waste discharge requirements, construction grant projects, water rights permits, and other specific water quality control implementing actions of the State and Regional Boards shall be consistent with the provisions of this policy.

The Board declares its intent to determine from time to time the need for revising this policy.

This policy does not apply to wastes from vessels or land runoff except as specifically indicated for siltation (Chapter III 4.) and combined sewer flows (Chapter III 7.).

## CHAPTER I.

## PRINCIPLES FOR MANAGEMENT OF WATER QUALITY IN ENCLOSED BAYS AND ESTUARIES

A. It is the policy of the State Board that the discharge of municipal wastewaters and industrial process waters[2/] (exclusive of cooling water discharges) to enclosed bays and estuaries, other than the San Francisco Bay-Delta system, shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by a Regional Board only when the Regional Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. [3/]

B. With regard to the waters of the San Francisco Bay-Delta system, the State Board finds and directs as follows:

1a. There is a considerable body of scientific evidence and opinion which suggests the existence of biological degradation due to long-term exposure to toxicants which have been discharged to the San Francisco Bay-Delta system. Therefore, implementation of a program which controls toxic effects through a combination of source control for toxic materials, upgraded wastewater treatment, and improved dilution of wastewaters, shall proceed as rapidly as is practicable with the objective of providing full protection to the biota and the beneficial uses of Bay-Delta waters in a cost-effective manner.

1b. A comprehensive understanding of the biological effects of wastewater discharge on San Francisco Bay, as a whole, must await the results of further scientific study. There is, however, sufficient evidence at this time to indicate that the continuation of wastewater discharges to the southern reach of San Francisco Bay, south of the Dumbarton Bridge, is an unacceptable condition. The State Board and the San Francisco Regional Board shall take such action as is necessary to assure the elimination of wastewater discharges to waters of the San Francisco Bay, south of Dumbarton Bridge, at the earliest practicable date.

1c. In order to prevent excessive investment which would unduly impact the limited funds available to California for construction of publicly owned treatment works, construction of such works shall proceed in a staged fashion, and each stage shall be fully evaluated by the State and Regional Boards to determine the necessity for additional expenditures. Monitoring requirements shall be established to evaluate any effects on water quality, particularly changes in species diversity and abundance, which may result from the operation of each stage of planned facilities

and source control programs. Such a staged construction program, in combination with an increased monitoring effort, will result in the most cost-effective and rapid progress toward a goal of maintaining and enhancing water quality in the San Francisco Bay-Delta system.

2. Where a waste discharger has an alternative of in-bay or ocean disposal and where both alternatives offer a similar degree of environmental and public health protection, prime consideration shall be given to the alternative which offers the greater degree of flexibility for the implementation of economically feasible wastewater reclamation options.

. The following policies apply to all of California's enclosed bays and estuaries:

1. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.
2. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution[4/] practicable to minimize concentrations of substances not removed by source control or treatment.
3. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.
4. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.
5. Nonpoint sources of pollutants shall be controlled to the maximum practicable extent.

## CHAPTER II.

## QUALITY REQUIREMENTS FOR WASTE DISCHARGES

1. In addition to any requirements of this policy, effluent limitations shall be as specified pursuant to Chapter 5.5 of the Porter-Cologne Water Quality Control Act, and Regional Boards shall limit the mass emissions of substances as necessary to meet such limitations. Regional Boards may set more restrictive mass emission rates and concentration standards than those which are referenced in this policy to reflect dissimilar tolerances to wastewater constituents among different receiving water bodies.

2. All dischargers of thermal wastes or elevated temperature wastes to enclosed bays and estuaries which are permitted pursuant to this policy shall comply with the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of Califonia", State Water Resources Control Board, 1972, and with amendments and supplements thereto.

3. Radiological limits for waste discharges (for which regulatory responsibility is not preempted by the Federal Government) shall be at least as restrictive as limitations indicated in Section 30269, and Section 30355, Appendix A, Table II, of the California Administrative Code.

4. Dredge spoils to be disposed of in bay and estuarine waters must comply with federal criteria for determining the acceptability of dredged spoils to marine waters, and must be certified by the State Board or Regional Boards as in compliance with State Plans and Policies.

## CHAPTER III.

## DISCHARGE PROHIBITIONS

1. New discharges[5] of municipal wastewaters and industrial process waters[2] (exclusive of cooling water discharges) to enclosed bays and estuaries, other than the San Francisco Bay-Delta system, which are not consistently treated and discharged in a manner that would enhance the quality of receiving waters above that which would occur in the absence of the discharge, shall be prohibited.
2. The discharge of municipal and industrial waste sludge and untreated sludge digester supernatant, centrate, or filtrate to enclosed bays and estuaries shall be prohibited.
3. The deposition of rubbish or refuse into surface waters or at any place where they would be eventually transported to enclosed bays or estuaries shall be prohibited.[6]
4. The direct or indirect discharge of silt, sand, soil clay, or other earthen materials from onshore operations including mining, construction, agriculture, and lumbering, in quantities which unreasonably affect or threaten to affect beneficial uses shall be prohibited.
5. The discharge of materials of petroleum origin in sufficient quantities to be visible or in violation of waste discharge requirements shall be prohibited, except when such discharges are conducted for scientific purposes. Such testing must be approved by the Executive Officer of the Regional Board and the Department of Fish and Game.
6. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste shall be prohibited.
7. The discharge or by-passing of untreated waste to bays and estuaries shall be prohibited.[7]

## CHAPTER IV.

## GENERAL PROVISIONS

A. Effective Date

This policy is in effect as of the date of adoption by the State Water Resources Control Board.

B. Review and Revision of Plans, Policies and Waste Discharge Requirements

Provisions of existing or proposed policies or water quality control plans adopted by the State or Regional Boards for enclosed bays or estuaries shall be amended to conform with the applicable provisions of this policy.

Each appropriate Regional Board shall review and revise the waste discharge requirements with appropriate time schedules for existing discharges to achieve compliance with this policy and applicable water quality objectives. Each Regional Board affected by this policy shall set forth for each discharge allowable mass emission rates for each applicable effluent characteristic included in waste discharge requirements.

Regional Boards shall finalize waste discharge requirements as rapidly as is consistent with the National Pollutant Discharge Elimination System Permit Program.

C. Administration of Clean Water Grants Program

The Clean Water Grants Program shall require that the environmental impact report for any existing or proposed wastewater discharge to enclosed bays and estuaries, other than the San Francisco Bay-Delta system, shall evaluate whether or not the discharge would enhance the quality of receiving waters above that which would occur in the absence of the discharge.

The Clean Water Grants Program shall require that each study plan and project report (beginning with F. Y. 1974-75 projects) for a proposed wastewater treatment or conveyance facility within the San Francisco Bay-Delta system shall contain an evaluation of the degree to which the proposed project represents a necessary and cost-effective stage in a program leading to compliance with an objective of full protection of the biota and beneficial uses of Bay-Delta waters.

D. Administration of Water Rights

Any applicant for a permit to appropriate from a water-course which is tributary to an enclosed bay or estuary may be required to present to the State Board an analysis of the anticipated effects of the proposed appropriation on water quality and beneficial uses of the effected bay or estuary.

E. Monitoring Program

The Regional Board shall require dischargers to conduct self-monitoring programs and submit reports as necessary to determine compliance with waste discharge requirements and to evaluate the effectiveness of wastewater control programs. Such monitoring programs shall comply with applicable sections of the State Board's Administrative Procedures, and any additional guidelines which may be issued by the Executive Officer of the State Board.

## FOOTNOTES

1/ Enclosed bays are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outer most harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes, but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

Estuaries, including coastal lagoons, are waters at the mouths of streams which serve as mixing zones for fresh and ocean waters. Mouths of streams which are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters shall be considered to extend seaward if significant mixing of fresh and saltwater occurs in the open coastal waters. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

2/ For the purpose of this policy, treated ballast waters and innocuous nonmunicipal wastewater such as clear brines, wash-water, and pool drains are not necessarily considered industrial process wastes, and may be allowed by Regional Boards under discharge requirements that provide protection to the beneficial uses of the receiving water.

3/ Undiluted wastewaters covered under this exception provision shall not produce less than 90 percent survival, 50 percent of the time, and not less than 70 percent survival, 10 percent of the time of a standard test species in a 96-hour static or continuous flow bioassay test using undiluted waste. Maintenance of these levels of survival shall not by themselves constitute sufficient evidence that the discharge satisfies the criteria of enhancing the quality of the receiving water above that which occur in the absence of the discharge. Full and uninterrupted protection for the beneficial uses of the receiving water must be maintained. A Regional Board may require physical, chemical, bioassay, and bacteriological assessment of treated wastewater quality prior to authorizing release to the bay or estuary of concern.

4/ Initial dilution zone is defined as the volume of water near the point of discharge within which the waste immediately mixes with the bay or estuarine water due to the momentum of the waste discharge and the difference in density between the waste and receiving water.

5/ A new discharge is a discharge for which a Regional Board has not received a report of waste discharge prior to the date of adoption of this policy, and which was not in existence prior to the date of adoption of this policy.

6/ Rubbish and refuse include any cans, bottles, paper, plastic, vegetable matter, or dead animals or dead fish deposited or caused to be deposited by man.

7/ The prohibition does not apply to cooling water streams which comply with the "Water Quality Control Plan for the Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" - State Water Resources Control Board.

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 74- 43

WATER QUALITY CONTROL POLICY FOR THE
ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA

WHEREAS:

1. The Board finds it necessary to promulgate water quality principles, guidelines, effluent quality requirements, and prohibitions to govern the disposal of waste into the enclosed bays and estuaries of California;

2. The Board, after review and analysis of testimony received at public hearings, has determined that it is both feasible and desirable to require that the discharge of municipal wastewaters and industrial process waters to enclosed bays and estuaries (other than the San Francisco Bay-Delta system) should only be allowed when a discharge enhances the quality of the receiving water above that which would occur in the absence of the discharge;

3. The Board has previously promulgated requirements for the discharge of thermal and elevated temperature wastes to enclosed bays and estuaries (Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California - SWRCB, 1972);

4. The Board, after review and analysis of testimony received at public hearings, has determined that implementation of a program which controls toxic effects through a combination of source control for toxic materials, upgraded waste treatment, and improved dilution of wastewaters, will result in timely and cost-effective progress toward an objective of providing full protection to the biota and beneficial uses of San Francisco Bay-Delta waters;

5. The Board intends to implement monitoring programs to determine the effects of source control programs, upgraded treatment, and improved dispersion of wastewaters on the condition of the biota and beneficial uses of San Francisco Bay-Delta waters.

THEREFORE, BE IT RESOLVED, that

1. The Board hereby adopts the "Water Quality Control Policy for the Enclosed Bays and Estuaries of California".

2. The Board hereby directs all affected California Regional Water Quality Control Boards to implement the provisions of the policy.

3. The Board hereby declares its intent to determine from time to time the need for revising the policy to assure that it reflects current knowledge of water quality objectives necessary to protect beneficial uses of bay and estuarine waters and that it is based on latest technological improvements.

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 16, 1974.

Bill B. Dendy

Bill B. Dendy
Executive Officer

# WATER QUALITY CONTROL POLICY ON THE USE AND DISPOSAL OF INLAND WATERS USED FOR POWERPLANT COOLING

## Introduction

The purpose of this policy is to provide consistent statewide water quality principles and guidance for adoption of discharge requirements, and implementation actions for powerplants which depend upon inland waters for cooling. In addition, this policy should be particularly useful in guiding planning of new power generating facilities so as to protect beneficial uses of the State's water resources and to keep the consumptive use of freshwater for powerplant cooling to that minimally essential for the welfare of the citizens of the State.

This policy has been prepared to be consistent with federal, state, and local planning and regulatory statutes, the Warren-Alquist State Energy Resources Conservation and Development Act, Water Code Section 237 and the Waste Water Reuse Law of 1974.

Section 25216.3 of the Warren-Alquist Act states:

> "(a) The commission shall compile relevant local, regional, state, and federal land use, public safety, environmental, and other standards to be met in designing, siting, and operating facilities in the State; except as provided in subdivision (d) of Section 25402, adopt standards, except for air and water quality,...."

Water Code Section 237 and Section 462 of the Waste Water Reuse Law, direct the Department of Water Resources to:

> 237. "...either independently or in cooperation with any person or any county, state, federal, or other agency, including, but not limited to, the State Energy Resources Conservation and Development Commission, shall conduct studies and investigations on the need and availability of water for thermal electric powerplant cooling purposes, and shall report thereon to the Legislature from time to time...."

> 462. "...conduct studies and investigations on the availability and quality of waste water and uses of reclaimed waste water for beneficial purposes including, but not limited to ... and cooling for thermal electric powerplants."

Decisions on waste discharge requirements, water rights permits, water quality control plans, and other specific water quality control implementing actions by the State and Regional Boards shall be consistent with provisions of this policy.

The Board declares its intent to determine from time to time the need for revising this policy.

Definitions

1. Inland Water - all waters within the territorial limits of California exclusive of the waters of the Pacific Ocean outside of enclosed bays, estuaries, and coastal lagoons.

2. Fresh Inland Waters - those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife.

3. Salt Sinks - areas designated by the Regional Water Quality Control Boards to receive saline waste discharges.

4. Brackish Waters - includes all waters with a salinity range of 1,000 to 30,000 mg/l and a chloride concentration range of 250 to 12,000 mg/l. The application of the term "brackish" to a water is not intended to imply that such water is no longer suitable for industrial or agricultural purposes.

5. Steam-Electric Power Generating Facilities - electric power generating facilities utilizing fossil or nuclear-type fuel or solar heating in conjunction with a thermal cycle employing the steam-water system as the thermodynamic medium and for the purposes of this policy is synonomous with the word "powerplant".

6. Blowdown - the minimum discharge of either boiler water or recirculating cooling water for the purpose of limiting the buildup of concentrations of materials in excess of desirable limits established by best engineering practice.

7. Closed Cycle Systems - a cooling water system from which there is no discharge of wastewater other than blowdown.

8. Once-Through Cooling - a cooling water system in which there is no recirculation of the cooling water after its initial use.

9. Evaporative Cooling Facilities - evaporative towers, cooling ponds, or cooling canals, which utilize evaporation as a means of wasting rejected heat to the atmosphere.

10. Thermal Plan - "Water Quality Control Plan for Control of Temperature In The Coastal and Interstate Waters and Enclosed Bays and Estuaries of California"

11. Ocean Plan - "Water Quality Control Plan for Ocean Waters of California"

Basis of Policy

1. The State Board believes it is essential that every reasonable effort be made to conserve energy supplies and reduce energy demands to minimize adverse effects on water supply and water quality and at the same time satisfy the State's energy requirements.

2. The increasing concern to limit changes to the coastal environment and the potential hazards of earthquake activity along the coast has led the electric utility industry to consider siting steam-electric generating plants inland as an alternative to proposed coastal locations.

3. Although many of the impacts of coastal powerplants on the marine environment are still not well understood, it appears the coastal marine environment is less susceptible than inland waters to the water quality impacts associated with powerplant cooling. Operation of existing coastal powerplants indicate that these facilities either meet the standards of the State's Thermal Plan and Ocean Plan or could do so readily with appropriate technological modifications. Furthermore, coastal locations provide for application of wide range of cooling technologies which do not require the consumptive use of inland waters and therefore would not place an additional burden on the State's limited supply of inland waters. These technologies include once-through cooling which is appropriate for most coastal sites, potential use of saltwater cooling towers, or use of brackish waters where more stringent controls are required for environmental considerations at specific sites.

4. There is a limited supply of inland water resources in California. Basin planning conducted by the State Board has shown that there is no available water for new allocations in some basins. Projected future water demands when compared to existing developed water supplies indicate that general fresh-water shortages will occur in many areas of the State prior to the year 2000. The use of inland waters for powerplant cooling needs to be carefully evaluated to assure proper future allocation of inland waters considering all other beneficial uses. The loss of inland waters through evaporation in powerplant cooling facilities may be considered an unreasonable use of inland waters when general shortages occur.

5. The Regional Boards have adopted water quality objectives including temperature objectives for all surface waters in the State.

6. Disposal of once-through cooling waters from powerplants to inland waters is incompatible with maintaining the water quality objectives of the State Board's "Thermal Plan" and "Water Quality Control Plans".

7. The improper disposal of blowdown from evaporative cooling facilities may have an adverse impact on the quality of inland surface and groundwaters and on fish and wildlife.

8. An important consideration in the increased use of inland water for powerplant cooling or for any other purpose in the Central Valley Region is the reduction in the available quantity of water to meet the Delta outflow requirements necessary to protect Delta water quality objectives and standards. Additionally, existing contractual agreements to provide future water supplies to the Central Valley, the South Coastal Basin, and other areas using supplemental water supplies are threatening to further reduce the Central Valley outflow necessary to protect the Delta environment.

9. The California Constitution and the California Water Code declare that the right to use water from a natural stream or watercourse is limited to such water as shall be reasonably required for beneficial use and does not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion. Section 761, Article 17.2, Subchapter 2, Chapter 3, Title 23, California Administrative Code provides that permits or licenses for the appropriation of water will contain a term which will subject the permit or license to the continuing authority of the State Board to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

10. The Water Code authorizes the State Board to prohibit the discharge of wastes to surface and groundwaters of the State.

Principles

1. It is the Board's position that from a water quantity and quality standpoint the source of powerplant cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility consideration: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters.

2. Where the Board has jurisdiction, use of fresh inland waters for powerplant cooling will be approved by the Board only when it is demonstrated that the use of other water supply sources or other methods of cooling would be environmentally undesirable or economically unsound.

3. In considering issuance of a permit or license to appropriate water for powerplant cooling, the Board will consider the reasonableness of the proposed water use when compared with other present and future needs for the water source and when viewed in the context of alternative water sources that could be used

for the purpose. The Board will give great weight to the results of studies made pursuant to the Warren-Alquist State Energy Resources Conservation and Development Act and carefully evaluate studies by the Department of Water Resources made pursuant to Sections 237 and 462, Division 1 of the California Water Code.

4. The discharge of blowdown water from cooling towers or return flows from once-through cooling shall not cause a violation of water quality objectives or waste discharge requirements established by the Regional Boards.

5. The use of unlined evaporation ponds to concentrate salts from blowdown waters will be permitted only at salt sinks approved by the Regional and State Boards. Proposals to utilize unlined evaporation ponds for final disposal of blowdown waters must include studies of alternative methods of disposal. These studies must show that the geologic strata underlying the proposed ponds or salt sink will protect usable groundwater.

6. Studies of availability of inland waters for use in powerplant cooling facilities to be constructed in Central Valley basins, the South Coastal Basins or other areas which receive supplemental water from Central Valley streams as for all major new uses must include an analysis of the impact of such use on Delta outflow and Delta water quality objectives. The studies associated with powerplants should include an analysis of the cost and water use associated with the use of alternative cooling facilities employing dry, or wet/dry modes of operation.

7. The State Board encourages water supply agencies and power generating utilities and agencies to study the feasibility of using wastewater for powerplant cooling. The State Board encourages the use of wastewater for powerplant cooling where it is appropriate. Furthermore, Section 25601(d) of the Warren-Alquist Energy Resources Conservation and Development Act directs the Commission to study, "expanded use of wastewater as cooling water and other advances in powerplant cooling" and Section 462 of the Waste Water Reuse Law directs the Department of Water Resources to "...conduct studies and investigations on the availability and quality of waste water and uses of reclaimed waste water for beneficial purposes including, but not limited to ... and cooling for thermal electric powerplants."

Discharge Prohibitions

1. The discharge to land disposal sites of blowdown waters from inland powerplant cooling facilities shall be prohibited except to salt sinks or to lined facilities approved by the Regional and State Boards for the reception of such wastes.

2. The discharge of wastewaters from once-through inland powerplant cooling facilities shall be prohibited unless the discharger can show that such a practice will maintain the existing water quality and aquatic environment of the State's water resources.

3. The Regional Boards may grant exceptions to these discharge prohibitions on a case-by-case basis in accordance with exception procedures included in the "Water Quality Control Plan for Control of Temperature In The Coastal and Interstate Waters and Enclosed Bays and Estuaries of California.

Implementation

1. Regional Water Quality Control Boards will adopt waste discharge requirements for discharges from powerplant cooling facilities which specify allowable mass emission rates and/or concentrations of effluent constituents for the blowdown waters. Waste discharge requirements for powerplant cooling facilities will also specify the water quality conditions to be maintained in the receiving waters.

2. The discharge requirements shall contain a monitoring program to be conducted by the discharger to determine compliance with waste discharge requirements.

3. When adopting waste discharge requirements for powerplant cooling facilities the Regional Boards shall consider other environmental factors and may require an environmental impact report, and shall condition the requirement in accordance with Section 2718, Subchapter 17, Chapter 3, Title 23, California Administrative Code.

4. The State Board shall include a term in all permits and licenses for appropriation of water for use in powerplant cooling that requires the permittee or licensee to conduct ongoing studies of the environmental desirability and economic feasibility of changing facility operations to minimize the use of fresh inland waters. Study results will be submitted to the State Board at intervals as specified in the permit term.

5. Petitions by the appropriator to change the nature of the use of appropriated water in an existing permit or license to allow the use of inland water for powerplant cooling may have an impact on the quality of the environment and as such require the preparation of an environmental impact statement or a supplement to an existing statement regarding, among other factors, an analysis of the reasonableness of the proposed use.

6. Applications to appropriate inland waters for powerplant cooling purpose shall include results of studies comparing the environmental impact of alternative inland sites as well as alternative water supplies and cooling facilities. Studies of alternative coastal sites must be included in the environmental impact report. Alternatives to be considered in the environmental impact report, including but not limited to sites, water supply, and cooling facilities, shall be mutually agreed upon by the prospective appropriator and the State Board staff. These studies should include comparisons of environmental impact and economic and social benefits and costs in conformance with the Warren-Alquist State Energy Resources Conservation and Development Act, the California Coastal Zone Plan, the California Environmental Quality Act and the National Environmental Policy Act.

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 75-58

WATER QUALITY CONTROL POLICY ON THE USE AND DISPOSAL OF INLAND WATERS USED FOR POWERPLANT COOLING

WHEREAS:

1. Basin planning conducted by the State Board has shown that there is presently no available water for new allocations in some basins.

2. Projected future water demands, when compared to existing developed water supplies, indicate that general freshwater shortages will occur in many areas of the State prior to the year 2000.

3. The improper disposal of powerplant cooling waters may have an adverse impact on the quality of inland surface and groundwaters.

4. It is believed that further development of water in the Central Valley will reduce the quantity of water available to meet Delta outflow requirements and protect Delta water quality standards.

THEREFORE, BE IT RESOLVED, that

1. The Board hereby adopts the "Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling".

2. The Board hereby directs all affected California Regional Water Quality Control Boards to implement the applicable provisions of the policy.

3. The Board hereby directs staff to coordinate closely with the State Energy Resources Conservation and Development Commission and other involved state and local agencies as this policy is implemented.

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on June 19, 1975.

Bill B. Dendy

Bill B. Dendy
Executive Officer

4/8/8

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 77-1

POLICY WITH RESPECT TO WATER
RECLAMATION IN CALIFORNIA

WHEREAS:

1. The California Constitution provides that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that waste or unreasonable use or unreasonable method of use of water be prevented, and that conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare;

2. The California Legislature has declared that the State Water Resources Control Board and each Regional Water Quality Control Board shall be the principal state agencies with primary responsibility for the coordination and control of water quality;

3. The California Legislature has declared that the people of the State have a primary interest in the development of facilities to reclaim water containing waste to supplement existing surface and underground water supplies;

4. The California Legislature has declared that the State shall undertake all possible steps to encourage the development of water reclamation facilities so that reclaimed water may be made available to help meet the growing water requirements of the State;

5. The Board has reviewed the document entitled "Policy and Action Plan for Water Reclamation in California", dated December 1976. This document recommends a variety of actions to encourage the development of water reclamation facilities and the use of reclaimed water. Some of these actions require direct implementation by the Board; others require implementation by the Executive Officer and the Regional Boards. In addition, this document recognizes that action by many other state, local, and federal agencies and the California State Legislature would also encourage construction of water reclamation facilities and the use of reclaimed water. Accordingly, the Board recommends for its consideration a number of actions intended to coordinate with the program of this Board;

6. The Board must concentrate its efforts to encourage and promote reclamation in water-short areas of the State where reclaimed water can supplement or replace other water supplies without interfering with water rights or instream beneficial uses or placing an unreasonable burden on present water supply systems; and

7. In order to coordinate the development of reclamation potential in California, the Board must develop a data collection, research, planning, and implementation program for water reclamation and reclaimed water uses.

THEREFORE, BE IT RESOLVED:

1. That the State Board adopt the following Principles:

   I. The State Board and the Regional Boards shall encourage, and consider or recommend for funding, water reclamation projects which meet Condition 1, 2, or 3 below and which do not adversely impact vested water rights or unreasonably impair instream beneficial uses or place an unreasonable burden on present water supply systems;

      (1) Beneficial use will be made of wastewaters that would otherwise be discharged to marine or brackish receiving waters or evaporation ponds,

      (2) Reclaimed water will replace or supplement the use of fresh water or better quality water,

      (3) Reclaimed water will be used to preserve, restore, or enhance instream beneficial uses which include, but are not limited to, fish, wildlife, recreation and esthetics associated with any surface water or wetlands.

   II. The State Board and the Regional Boards shall (1) encourage reclamation and reuse of water in water-short areas of the State, (2) encourage water conservation measures which further extend the water resources of the State, and (3) encourage other agencies, in particular the Department of Water Resources, to assist in implementing this policy.

   III. The State Board and the Regional Boards recognize the need to protect the public health including potential vector problems and the environment in the implementation of reclamation projects.

   IV. In implementing the foregoing Principles, the State Board or the Regional Boards, as the case may be, shall take appropriate actions, recommend legislation, and recommend actions by other agencies in the areas of (1) planning, (2) project funding, (3) water rights, (4) regulation and enforcement, (5) research and demonstration, and (6) public involvement and information.

2. That, in order to implement the foregoing Principles, the State Board:

(a) Approves Planning Program Guidance Memorandum No. 9, "PLANNING FOR WASTEWATER RECLAMATION",

(b) Adopts amendments and additions to Title 23, California Administrative Code Sections 654.4, 761, 764.9, 783, 2101, 2102, 2107, 2109, 2109.1, 2109.2, 2119, 2121, 2133(b)(2), and 2133(b)(3),

(c) Approves Grants Management Memorandum No. 9.01, "WASTEWATER RECLAMATION",

(d) Approves the Division of Planning and Research, Procedures and Criteria for the Selection of Wastewater Reclamation Research and Demonstration Projects,

(e) Approves "GUIDELINES FOR REGULATION OF WATER RECLAMATION",

(f) Approves the Plan of Action contained in Part III of the document identified in Finding Five above,

(g) Directs the Executive Officer to establish an Interagency Water Reclamation Policy Advisory Committee. Such Committee shall examine trends, analyze implementation problems, and report annually to the Board the results of the implementation of this policy, and

(h) Authorizes the Chairperson of the Board and directs the Executive Officer to implement the foregoing Principles and the Plan of Action contained in Part III of the document identified in Finding Five above, as appropriate.

3. That not later than July 1, 1978, the Board shall review this policy and actions taken to implement it, along with the report prepared by the Interagency Water Reclamation Policy Advisory Committee, to determine whether modifications to this policy are appropriate to more effectively encourage water reclamation in California.

4. That the Chairperson of the Board shall transmit to the California Legislature a complete copy of the "Policy and Action Plan for Water Reclamation in California".

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a special meeting of the State Water Resources Control Board held on January 6, 1977.

Dated: JAN 6 1977

Bill B. Dendy
Executive Officer

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 87- 22

# POLICY ON THE DISPOSAL OF SHREDDER WASTE

WHEREAS:

1. Chemical analysis of wastes resulting from the shredding of automobile bodies, household appliances, and sheet metal (hereinafter shredder waste) by methods stipulated by the Department of Health Services (hereinafter DHS) has resulted in the classification of shredder waste as a hazardous waste and the determination that, if inappropriately handled, it could catch fire and release toxic gases.

2. The California Legislature has declared that shredder waste shall not be classified as hazardous for the purposes of disposal if the producer demonstrates that the waste will not pose a threat to human health or water quality if disposed of in a qualified Class III waste management unit, as specified in Section 2533 of Subchapter 15 of Chapter 3 of Title 23 of the California Administrative Code (hereinafter Subchapter 15).

3. DHS has granted shredder waste a variance for the purposes of disposal from hazardous waste management requirements pursuant to Section 66310 of Title 22 of the California Administrative Code.

4. Hazardous waste which has received a variance from DHS for the purposes of disposal is classified as a designated waste pursuant to Section 2522 of Subchapter 15.

5. In general, designated waste must be disposed of in a Class I or Class II waste management unit. However, designated waste may be disposed of in a Class III waste management unit provided that the discharger establishes to the satisfaction of the Regional Water Quality Control Board (hereinafter Regional Board) that the waste presents a lower risk of degrading water quality than is indicated by its classification. (Authority: Section 2520, Subchapter 15)

6. Analysis of shredder waste by the U. S. Environmental Protection Agency's extraction procedure for heavy metals does not normally result in its classification as a hazardous waste.

7. The disposal of shredder waste in a manner such that it is not in contact with putrescible waste or the leachate generated by putrescible waste will not result in the high mobilization of metals indicated by the tests used to determine that shredder waste is hazardous; therefore, such disposal may occur in accordance with Section 2520 of Subchapter 15.

8. Levels of polychlorinated biphenyls (hereinafter PCB) which slightly exceed 50 mg/kg, the level as defined by the U. S. Environmental Protection Agency which requires disposal to an approved site in accordance with the Federal Toxic Substances Control Act, have been measured in some existing shredder waste piles.

THEREFORE BE IT RESOLVED:

1. That shredder waste which is determined hazardous by DHS, but is granted a variance for the purposes of disposal by DHS, is suitable for disposal at Class III waste management units as designated by the Regional Board when it has been demonstrated to the Regional Board that the waste management units at least meet the minimum requirements for a Class III waste management unit as defined by Subchapter 15 provided that:

   a. The shredder waste producer has demonstrated to the Regional Board that the waste contains no more than 50 mg/kg of PCB.

   b. The shredder waste is disposed on the last and highest lift in a closed disposal cell or in an isolated cell solely designated for the disposal of shredder waste.

2. That shredder waste which is not determined hazardous by DHS is suitable for disposal at Class III waste management units as designated by the Regional Board without special segregation or management.

3. That this resolution in no way abridges the rights of the Regional Boards to designate appropriate Class III waste management units for disposal of shredder waste consistent with Section 25143.6 of the Health and Safety Code (Chapter 1395, Statutes of 1985).

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on March 19, 1987.

Maureen Marché
Administrative Assistant to the Board

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 88- 23

ADOPTION OF THE POLICY REGARDING THE
UNDERGROUND STORAGE TANK
PILOT PROGRAM

WHEREAS:

1. State law requires local governments to implement an underground tank permit program consisiting of monitoring requirements for existing underground tanks containing hazardous substances and design, construction and monitoring requirements for new tanks.

2. Monitoring efforts have led to the identification of approximately 5,000 leaking underground storage tank release sites with approximately 150 new cases being discovered statewide each month.

3. To address the problem of funding governmental oversight of remedial actions at these release sites, the Legislature appropriated funds and enacted AB 853 (Chapter 1317, Statutes of 1987).

4. Prior to expending funds from the reserve account established by Subdivision (c) of Section 7, Chapter 1439, Statutes of 1985 the State Water Resources Control Board must adopt administrative and technical prodecures for cleanup and abatement action taken under this pilot program.

THEREFORE BE IT RESOLVED:

THAT THE STATE BOARD:

1. Adopts the attached policy regarding implementation of the underground tank pilot program.

2. Directs the Executive Director or his designee to take actions needed to implement the policy.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on February 18, 1988.

Maureen Marche
Administrative Assistant to the Board

7/1/9

# STATE WATER RESOURCES CONTROL BOARD POLICY REGARDING THE UNDERGROUND STORAGE TANK PILOT PROGRAM

Statutory authority exists at the federal, state and local level to require remedial action at underground storage tank release sites and to rank and fund remedial action at underground storage tank release sites where a responsible party cannot be identified or has insufficient financial resources to accomplish the needed work. Some local agencies have used this authority to respond to some of these releases, as have the nine Regional Water Quality Control Boards. In addition, the Regional Boards are providing technical assistance to local agencies addressing underground storage tank cleanup. However, no specific statewide program for funding governmental oversight of remedial action by responsible parties has been established. As a result, underground storage tank release oversight is not being consistently addressed statewide, leaving site cleanup by responsible parties without adequate guidance.

To address this problem, the State Board, in cooperation with the Department of Health Services, is implementing a pilot program to fund oversight of remedial action at underground storage tank sites. This program will be funded through an appropriation from the state Hazardous Substances Cleanup Bond Fund and the federal Underground Storage Tank Petroleum Trust Fund.

Prior to implementation of this pilot program, the State Board is required by Section 25297.1 of the Health and Safety Code (AB 853, Chapter 1317, Statutes of 1987) to adopt, as state policy for water quality control, administrative and technical procedures to guide local agencies in development of their individual programs.

As participants in the pilot program, local agencies may contract with the State Board to oversee preliminary site assessment and, if necessary, remedial action at leaking underground storage tank sites. The State Board plans to initially enter into 12 contracts with subsequent expansion as appropriate.

## Site and Agency Selection

Local agencies will be selected for participation based on their readiness to implement the pilot program and the size of program which the agencies plan to conduct. Those agencies which have existing oversight efforts and plan to expand staff using pilot program funds were ranked highest among eligible candidates. Any local agency which, unless exempted, has failed to implement Chapter 6.7 of the Health and Safety Code and/or which has failed to collect and transmit to the State Board the surcharge fees pursuant to subdivision (b) of Section 25287, was eliminated from consideration.

Under the pilot program, funds may be used at all sites containing leaking tanks which are subject to the state permit program or Subtitle (I) of the federal Resource Conservation and Recovery Act. While contracting local agencies may perform oversight activities at any site within their jurisdictions, agencies may defer lead responsibility for any case affecting, or threatening to affect, ground water to the appropriate Regional Board.

In addition, the local agencies may defer lead responsibility for any case involving a non-petroleum substance to either the appropriate Regional Board or the Department of Health Services. Under terms of the contract between the local agencies and State Board, all cases involving no financially solvent responsible party, no identifiable responsible party or no responsible party willing to conduct remedial action must be reported to the State Board for possible listing on the state Site Expenditure Plan.

## Agreements Between the State Board and Local Agencies

The State Board has developed a model contract which will be used as the basis for negotiations between the local agencies and the State Board. This contract outlines in detail the types of activities expected of contracting agencies and the administrative duties of the State and Regional Boards. The model contract (Attachment 1) is hereby made a part of this water quality control policy. Language in the model contract may be modified in negotiations with the local agencies.

## Petition for Review

Responsible parties or any other aggrieved persons may petition the State Board for review of actions or decisions made by a local agency as part of the agency's participation in the pilot program. The procedures for such review are contained in "Review by State Board of Action or Failure to Act by Local Agencies" (Attachment 2), which is hereby made a part of this water quality control policy.

## Cost Recovery Procedures

Under terms of both the Cooperative Agreement with the federal government transferring money from the Trust Fund and Section 25297.1 of the Health and Safety Code concerning the Bond Fund, local contracting agencies must agree to keep site-specific accounting records and other such records as are necessary to verify all hours worked and expenses incurred at each underground storage tank site. Local contracting agencies will forward to the State Board monthly invoices listing all site-specific and administrative expenses.

The State Board must undertake cost recovery. Procedurally, the cost recovery efforts will be handled in the following manner. The State Board is responsible for ensuring the preparation of cost data and for invoicing responsible parties for all costs incurred by the State Board and/or local contracting agencies in performing activities covered by this agreement. Such costs shall include all additional costs required to be recovered pursuant to Health and Safety Code Section 25360. The State Board will provide guidelines to the local contracting agencies to ensure that necessary cost data are developed, maintained and reported to the State Board.

The State Board will invoice the responsible parties for all costs, both direct and indirect, attributable to that site upon conclusion of the preliminary site assessment phase. If cleanup of the site has not been completed, the State Board will continue invoicing the responsible parties at regular intervals thereafter until conclusion of site cleanup.

Upon receipt of a final invoice for each site, the State Board will invoice the responsible parties for all costs attributable to the site which have not previously been reimbursed by the responsible parties.

Payments received from responsible parties of sites having state-funded oversight will be deposited in the Hazardous Substances Clearing Account. Payments from responsible parties at federally funded sites will be handled according to procedures established by the federal Environmental Protection Agency.

Whenever a responsible party fails to repay all of the costs specified above, the State Board shall request the State Attorney General to bring a civil action to recover these moneys. The State Board shall be responsible for providing all necessary litigation support, including testimony, to the Attorney General and the Department of Health Services in any action to recover costs. The State Board will submit to the Department of Health Services a copy of each referral of state-funded sites to the Attorney General.

Evaluation Criteria

In conjunction with the pilot program, the State Board is developing the Leaking Underground Storage Tank Information System (LUSTIS). This computer tracking system will enable all local agencies and the Regional Boards to report known leaking tank sites and their cleanup status. Using LUSTIS, it will be possible to compare cleanup of sites in the pilot program with sites handled by non-contracting local agencies and the Regional Boards. Comparison criteria will include number of sites cleaned and length of time required to clean up each site. Additional statistics will be tracked by State Board staff to determine costs under the pilot program and success in cost recovery. Staff will report annually on the status of the pilot program including the above criteria. The report will be submitted to the State Board no later than September 1, 1988 and annually thereafter for the duration of the pilot program.

BECAUSE OF ITS TECHNICAL NATURE AND LENGTH, THE MODEL CONTRACT (ATTACHMENT 1) IS NOT INCLUDED IN THIS PACKET. COPIES WILL BE PROVIDED UPON REQUEST. FOR COPIES, PLEASE CONTACT BETTY MORENO, DIVISION OF WATER QUALITY, STATE WATER RESOURCES CONTROL BOARD, P.O. BOX 100, SACRAMENTO, CA 95801-0100, (916) 324-1262.

REVIEW BY STATE BOARD OF ACTION OR FAILURE TO ACT BY LOCAL AGENCIES

(1) Applicability. This section establishes the procedures by which a responsible party or other aggrieved person may petition the State Board for review of the action or decision a local agency made as part of that local agency's participation in the pilot program. Actions or decisions made by local agencies independent of their participation in the pilot program, and actions or decisions of local agencies that are not participating in the pilot program, are not subject to review by the State Board under this section.

(2) Petitions. Any responsible party or other aggrieved person may petition the State Board for review of an action or decision of a local agency, including a local agency's failure to act, as part of the pilot program.

(A) The petition shall be submitted in writing and received by the State Board within 30 days of the action or decision of the local agency. In the case of a failure to act, the 30-day period shall commence upon refusal of the local agency to act, or 60 days after the request has been made to the local agency to act. The State Board will not accept any petition received after the 30-day period for filing petitions but the State Board may, on its own motion, at any time review any local agency's action or failure to act.

(B) The petition shall contain the following:
(1) The name and address of the petitioner;
(2) The specific action or inaction of the local agency which the State Board is requested to review;
(3) The date on which the local agency acted or refused to act or on which the local agency was requested to act;
(4) A full and complete statement of the reasons the action or failure to act was inappropriate or improper;
(5) The manner in which the petitioner is aggrieved;
(6) The specific action by the State Board or the local agency which the petitioner requests;
(7) A statement of points and authorities in support of legal issues raised in the petition;
(8) A list of persons, if any, other than the petitioner, known by the local agency to have an interest in the subject matter of the petition. Such list shall be obtained from the local agency;
(9) A statement that the petition has been sent to the local agency, the appropriate Regional Board, and to any responsible parties other than the petitioner, known to the petitioner or the local agency;
(10) A copy of the request to the local agency for preparation of the local agency record.

(C) If petitioner requests a hearing for the purpose of presenting additional evidence, the petition shall include a statement that additional evidence is available that was not presented to the local agency or that evidence was improperly excluded by the local agency. A detailed statement of the nature of the evidence and the facts to be proved shall also be included. If evidence was not presented to the local agency, the reason it was not presented shall be explained. If the petitioner contends that evidence was improperly excluded, the request for a hearing shall include a specific statement of the manner in which the evidence was excluded improperly.

(D) Upon receipt of a petition which does not comply with this subdivision, the petitioner will be notified in what respect the petition is defective and the time within which an amended petition may be filled. If a properly amended petition is not received by the State Board within the time allowed, the petition shall be dismissed unless cause is shown for an extension of time.

(E) The State Board may dismiss the petition at any time if the petition is withdrawn or the petition fails to raise substantial issues that are appropriate for review.

(3) Responses. Upon receipt of a petition which complies with subdivision (2), the State Board shall give written notification to the petitioner, the responsible party or parties, if not the petitioner, the local agency, the Regional Board, the Toxic Substances Control Division Office of Legal Counsel in the Department of Health Services, and other interested persons that they shall have 20 days from the date of mailing such notification to file a response to the petition with the State Board. Respondents to petitions shall also send copies of their responses to the petitioner and the local agency, as appropriate. The local agency shall file the record specified in paragraph (B)(10) of subdivision (2) within this 20-day period. Any response which requests a hearing by the State Board shall comply with paragraph (C) of subdivision (2). The time for filing a response may be extended by the State Board. When a review is undertaken on the State Board's own motion, all affected persons known to the State Board shall be notified and given an opportunity to submit information and comments, subject to such conditions as the State Board may prescribe.

(4) Proceedings before the State Board. After review of the record, the State Board may deny the petition or grant the petition in whole or in part.

(A) The State Board may order one or more proceedings which are legally or factually related to be considered or heard together unless any party thereto makes a sufficient showing of prejudice.

(B) The State Board may, in its discretion, hold a hearing for the receipt of additional evidence. If a hearing is held, the State Board shall give reasonable notice of the time and place and of the issues to be considered to the responsible party or parties, if not the petitioner, the local agency, any interested persons who have

filed a response to the petition pursuant to subdivision (3) and such other persons as the State Board deems appropriate. The State Board in its discretion may require that, not later than ten days before the hearing, all interested parties intending to participate shall submit to the State Board in writing the name of each witness who will appear, together with a statement of the qualifications of each expert witness who will appear, the subject of the proposed testimony, and the estimated time required by the witness to present direct testimony. The Board may also require that copies of proposed exhibits be supplied to the State Board not later than ten days before the hearing.

(C) The State Board may discuss a proposed order in a public workshop prior to final action at a State Board meeting. At the workshop meeting, the State Board may invite comments on the proposed order from interested persons. These comments shall be based solely upon factual evidence contained in the record or upon legal argument.

(D) The evidence before the State Board shall consist of (i) the record before the local agency; (ii) any evidence admitted by the State Board at a hearing and (iii) any other relevant evidence which, in the judgment of the State Board, should be considered to effectuate and implement the pilot program. Upon the close of a hearing, the presiding officer may keep the hearing record open for a definite time, not to exceed thirty days, to allow any party to file additional exhibits, reports or affidavits. If any person desires to submit factual evidence not in the local agency record or hearing record, and the proposed order will be discussed at a workshop meeting such person may take this request to the State Board prior to or during the workshop. This request shall include a description of the evidence, and a statement and supporting argument that the evidence was improperly excluded from the record or an explanation of the reasons why the factual evidence could not previously have been submitted. If the State Board in its discretion approves the request, the evidence must be submitted in writing by the person requesting consideration of the evidence to the State Board, and to any other interested person who filed the petition or a response to the petition, within five days of such approval. The evidentiary submittal shall be accompanied by a notification that other interested parties shall be allowed an additional five days from the submittal date to file responsive comments in writing. A copy of the notification shall be filed with the State Board.

(E) Any order granting or denying the petition will be adopted at a regularly scheduled State Board meeting. At the meeting the State Board may invite comments on the matter from interested persons. These comments shall be based solely upon factual evidence contained in the record, including any evidence accepted by the State Board pursuant to paragraph (D), or legal argument. No new factual evidence shall be submitted at the State Board meeting. If new

legal argument is to be submitted at the State Board meeting, this argument is to be filed in writing with the State Board and other interested persons at least five working days prior to the State Board meeting in order for such argument to be considered by the State Board.

(F) An order adopted by the State Board may:
- (i) Deny the petition upon a finding that the action or failure to act of the local agency was appropriate and proper;
- (ii) Set aside or modify the local agency's action;
- (iii) Direct the local agency to take appropriate action; or
- (iv) Request appropriate action by the Regional Board or the Department of Health Services.

(G) If the State Board does not adopt an order or dismiss the petition within 270 days of written notification provided in subdivision (C), the petition is deemed denied. This time limit may be extended for a period not to exceed 60 days by written agreement between the State Board and the petitioner.

(5) Stay Orders. The State Board may stay in whole or in part, pending final disposition of any petition or any proceedings for review on the State Board's own motion, the effect of the action or decision of the local agency. The filing of a petition shall not operate as a stay of the local agency's action or decision, or effect of the local agency's authority to implement or amend that action or decision, unless a stay is issued by the State Board.

(A) A stay order may be issued upon petition of an interested person, or on the State Board's own motion. The stay order may be issued by the State Board, upon notice and a hearing, or by the State Board's Executive Director. If the stay order is issued by the Executive Director, the State Board shall conduct a hearing within 60 days after the stay order is issued by the Executive Director, to consider whether the stay order should be rescinded or modified, unless the State Board makes final disposition of the petition within that 60-day period. A request for a stay may be denied without a hearing.

(B) A petition for a stay shall be supported by affidavit of a person or persons having knowledge of the facts alleged. The requirement of an affidavit may be waived by the State Board in case of an emergency. A petition for a stay will be denied unless the petitioner alleges facts and produces proof of:
- (i) Substantial harm to petitioner or to the public interest if a stay is not granted;
- (ii) A lack of substantial harm to other interested persons and or the public interest if a stay is granted;
- (iii) Substantial questions of law or fact regarding the action or decision of the local agency.

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 88- 63

ADOPTION OF POLICY ENTITLED
"SOURCES OF DRINKING WATER"

WHEREAS:

1. California Water Code Section 13140 provides that the State Board shall formulate and adopt State Policy for Water Quality Control; and,

2. California Water Code Section 13240 provides that Water Quality Control Plans "shall conform" to any State Policy for Water Quality Control; and,

3. The Regional Boards can conform the Water Quality Control Plans to this policy by amending the plans to incorporate the policy; and,

4. The State Board must approve any conforming amendments pursuant to Water Code Section 13245; and,

5. "Sources of drinking water" shall be defined in Water Quality Control Plans as those water bodies with beneficial uses designated as suitable, or potentially suitable, for municipal or domestic water supply (MUN); and,

6. The Water Quality Control Plans do not provide sufficient detail in the description of water bodies designated MUN to judge clearly what is, or is not, a source of drinking water for various purposes.

THEREFORE BE IT RESOLVED:

All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards[1] with the exception of:

1. <u>Surface and ground waters where:</u>

   a. The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by Regional Boards to supply a public water system, or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

2. Surface waters where:

a. The water is in systems designed or modified to collect or treat municipal or industrial wastewaters, process waters, mining wastewaters, or storm water runoff, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards; or,

b. The water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards.

3. Ground water where:

The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations, Section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, Section 261.3.

4. Regional Board Authority to Amend Use Designations:

Any body of water which has a current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion. Where a body of water is not currently designated as MUN but, in the opinion of a Regional Board, is presently or potentially suitable for MUN, the Regional Board shall include MUN in the beneficial use designation.

The Regional Boards shall also assure that the beneficial uses of municipal and domestic supply are designated for protection wherever those uses are presently being attained, and assure that any changes in beneficial use designations for waters of the State are consistent with all applicable regulations adopted by the Environmental Protection Agency.

The Regional Boards shall review and revise the Water Quality Control Plans to incorporate this policy.

---

1 This policy does not affect any determination of what is a potential source of drinking water for the limited purposes of maintaining a surface impoundment after June 30, 1988, pursuant to Section 25208.4 of the Health and Safety Code.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a policy duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 19, 1988.

Maureen Marche'
Administrative Assistant to the Board

State Water Resources Control Board

# WATER QUALITY CONTROL PLAN FOR CONTROL OF TEMPERATURE IN THE COASTAL AND INTERSTATE WATERS AND ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA[1/]

## DEFINITION OF TERMS

1. Thermal Waste - Cooling water and industrial process water used for the purpose of transporting waste heat.

2. Elevated Temperature Waste - Liquid, solid, or gaseous material including thermal waste discharged at a temperature higher than the natural temperature of receiving water. Irrigation return water is not considered elevated temperature waste for the purpose of this plan.

3. Natural Receiving Water Temperature - The temperature of the receiving water at locations, depths, and times which represent conditions unaffected by any elevated temperature waste discharge or irrigation return waters.

4. Interstate Waters - All rivers, lakes, artificial impoundments, and other waters that flow across or form a part of the boundary with other states or Mexico.

5. Coastal Waters - Waters of the Pacific Ocean outside of enclosed bays and estuaries which are within the territorial limits of California.

6. Enclosed Bays - Indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays will include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to the following: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

7. Estuaries and Coastal Lagoons - Waters at the mouths of streams which serve as mixing zones for fresh and ocean water during a major portion of the year. Mouths of streams which are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open

---

1/ This plan revises and supersedes the policy adopted by the State Board on January 7, 1971, and revised October 13, 1971, and June 5, 1972.

ocean to the upst am limit of tidal action b may be considered to extend seaward if significant m ng of fresh and saltwater occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge and appropriate areas of Smith River, Klamath River, Mad River, Eel River, Noyo River, and Russian River.

8. Cold Interstate Waters - Streams and lakes having a range of temperatures generally suitable for trout and salmon including but not limited to the following: Lake Tahoe, Truckee River, West Fork Carson River, East Fork Carson River, West Walker River and Lake Topaz, East Walker River, Minor California-Nevada Interstate Waters, Klamath River, Smith River, Goose Lake, and Colorado River from the California-Nevada stateline to the Needles-Topoc Highway Bridge.

9. Warm Interstate Waters - Interstate streams and lakes having a range of temperatures generally suitable for warm water fishes such as bass and catfish. This definition includes but is not limited to the following: Colorado River from the Needles-Topoc Highway Bridge to the northerly international boundary of Mexico, Tijuana River, New River, and Alamo River.

10. Existing Discharge - Any discharge (a) which is presently taking place, or (b) for which waste discharge requirements have been established and construction commenced prior to the adoption of this plan, or (c) any material change in an existing discharge for which construction has commenced prior to the adoption of this plan. Commencement of construction shall include execution of a contract for onsite construction or for major equipment which is related to the condenser cooling system.

    Major thermal discharges under construction which are included within this definition are:

    A. Diablo Canyon Units 1 and 2, Pacific Gas and Electric Company.

    B. Ormond Beach Generating Station Units 1 and 2, Southern California Edison Company.

    C. Pittsburg No. 7 Generating Plant, Pacific Gas and Electric Company.

    D. South Bay Generating Plant Unit 4 and Encina Unit 4, San Diego Gas and Electric Company.

11. New Discharge - Any discharge (a) which is not presently taking place unless waste discharge requirements have been established and construction as defined in Paragraph 10 has commenced prior to adoption of this plan or (b) which is presently taking place and for which a material change is proposed but no construction as defined in Paragraph 10 has commenced prior to adoption of this plan.

12. Planktonic Organism - Phytoplankton, zooplankton and the larvae and eggs of worms, molluscs, and anthropods, and the eggs and larval forms of fishes.

13. Limitations or Additional Limitations - Restrictions on the temperature, location, or volume of a discharge, or restrictions on the temperature of receiving water in addition to those specifically required by this plan.

## SPECIFIC WATER QUALITY OBJECTIVES

1. Cold Interstate Waters

   A. Elevated temperature waste discharges into cold interstate waters are prohibited.

2. Warm Interstate Waters

   A. Thermal waste discharges having a maximum temperature greater than 5°F above natural receiving water temperature are prohibited.

   B. Elevated temperature wastes shall not cause the temperature of warm interstate waters to increase by more than 5°F above natural temperature at any time or place.

   C. Colorado River - Elevated temperature wastes shall not cause the temperature of the Colorado River to increase above the natural temperature by more than 5°F or the temperature of Lake Havasu to increase by more than 3°F provided that such increases shall not cause the maximum monthly temperature of the Colorado River to exceed the following:

| | | | | | |
|---|---|---|---|---|---|
| January | - | 60°F | July | - | 90°F |
| February | - | 65°F | August | - | 90°F |
| March | - | 70°F | September | - | 90°F |
| April | - | 75°F | October | - | 82°F |
| May | - | 82°F | November | - | 72°F |
| June | - | 86°F | December | - | 65°F |

D. Lost River - Elevated temperature wastes discharged to the Lost River shall not cause the temperature of the receiving water to increase by more than 2°F when the receiving water temperature is less than 62°F, and 0°F when the receiving water temperature exceeds 62°F.

E. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

3. Coastal Waters

A. Existing discharges

(1) Elevated temperature wastes shall comply with limitations necessary to assure protection of the beneficial uses and areas of special biological significance.

B. New discharges

(1) Elevated temperature wastes shall be discharged to the open ocean away from the shoreline to achieve dispersion through the vertical water column.

(2) Elevated temperature wastes shall be discharged a sufficient distance from areas of special biological significance to assure the maintenance of natural temperature in these areas.

(3) The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F.

(4) The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

(5) Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

4. Enclosed Bays

A. Existing discharges

(1) Elevated temperature waste discharges shall comply with limitations necessary to assure protection of beneficial uses.

B. New discharges

(1) Elevated temperature waste discharges shall comply with limitations necessary to assure protection of beneficial uses. The maximum temperature of waste discharges shall not exceed the natural temperature of the receiving waters by more than 20°F.

(2) Thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

5. Estuaries

A. Existing discharges

(1) Elevated temperature waste discharges shall comply with the following:

a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.

b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

(2) Thermal waste discharges shall comply with the provisions of 5A(1) above and, in addition, the maximum temperature of thermal waste discharges shall not exceed 86°F.

B. New dischar_ s

(1) Elevated temperature waste discharges shall comply with item 5A(1) above.

(2) Thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

(3) Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

## GENERAL WATER QUALITY PROVISIONS

1. Additional limitations shall be imposed in individual cases if necessary for the protection of specific beneficial uses and areas of special biological significance. When additional limitations are established, the extent of surface heat dispersion will be delineated by a calculated 1-1/2°F isotherm which encloses an appropriate dispersion area. The extent of the dispersion area shall be:

   A. Minimized to achieve dispersion through the vertical water column rather than at the surface or in shallow water.

   B. Defined by the Regional Board for each existing and proposed discharge after receipt of a report prepared in accordance with the implementation section of this plan.

2. The cumulative effects of elevated temperature waste discharges shall not cause temperatures to be increased except as provided in specific water quality objectives contained herein.

3. Areas of special biological significance shall be designated by the State Board after public hearing by the Regional Board and review of its recommendations.

4. Regional Boards may, in accordance with Section 316(a) of the Federal Water Pollution Control Act of 1972, and subsequent federal regulations including 40 CFR 122, grant an exception to Specific Water Quality Objectives in this Plan. Prior to becoming effective, such exceptions and alternative less stringent requirements must receive the concurrence of the State Board.

5. Natural water temperature will be compared with waste discharge temperature by near-simultaneous measurements accurate to within 1°F. In lieu of near-simultaneous measurements, measurements may be made under calculated conditions of constant waste discharge and receiving water characteristics.

## IMPLEMENTATION

1. The State Water Resources Control Board and the California Regional Water Quality Control Boards will administer this plan by establishing waste discharge requirements for discharges of elevated temperature wastes.

2. This plan is effective as of the date of adoption by the State Water Resources Control Board and the sections pertaining to temperature control in each of the policies and plans for the individual interstate and coastal waters shall be void and superseded by all applicable provisions of this plan.

3. Existing and future dischargers of thermal waste shall conduct a study to define the effect of the discharge on beneficial uses and, for existing discharges, determine design and operating changes which would be necessary to achieve compliance with the provisions of this plan.

4. Waste discharge requirements for existing elevated temperature wastes shall be reviewed to determine the need for studies of the effect of the discharge on beneficial uses, changes in monitoring programs and revision of waste discharge requirements.

5. All waste discharge requirements shall include a time schedule which assures compliance with water quality objectives by July 1, 1977, unless the discharger can demonstrate that a longer time schedule is required to complete construction of necessary facilities; or, in accordance with any time schedule contained in guidelines promulgated pursuant to Section 304(b) of the Federal Water Pollution Control Act.

6. Proposed dischargers of elevated temperature wastes may be required by the Regional Board to submit such studies prior to the establishment of waste discharge requirements. The Regional Board shall include in its requirements appropriate postdischarge studies by the discharger.

7. The scope of any necessary studies shall be as outlined by the Regional Board and shall be designed to include the following as applicable to an individual discharge:

   A. Existing conditions in the aquatic environment.

   B. Effects of the existing discharge on beneficial uses.

   C. Predicted conditions in the aquatic environment with waste discharge facilities designed and operated in compliance with the provisions of this plan.

D. Predicted effects of the proposed discharge on beneficial uses.

E. An analysis of costs and benefits of various design alternatives.

F. The extent to which intake and outfall structures are located and designed so that the intake of planktonic organisms is at a minimum, waste plumes are prevented from touching the ocean substrate or shorelines, and the waste is dispersed into an area of pronounced along-shore or offshore currents.

8. All waste discharge requirements adopted for discharges of elevated temperature wastes shall be monitored in order to determine compliance with effluent or receiving water temperature (or heat) requirements.

Furthermore, for significant thermal discharges as determined by the Regional Board or State, Regional Boards shall require expanded monitoring programs, to be carried out either on a continuous or periodic basis, designed to assess whether the source continues to provide adequate protection to beneficial uses (including the protection and propagation of a balanced indigenous community of fish, shellfish, and wildlife, in and on the body of water into which the discharge is made). When periodic expanded monitoring programs are specified, the frequency of the program shall reflect the probable impact of the discharge.

9. The State Board or Regional Board may require a discharger(s) to pay a public agency or other appropriate person an amount sufficient to carry out the expanded monitoring program required pursuant to paragraph 8 above if:

A. The discharger has previously failed to carry out monitoring programs in a manner satisfactory to the State Board or Regional Board, or;

B. More than a single facility, under separate ownerships, may significantly affect the thermal characteristics of the body of water, and the owners of such facilities are unable to reach agreement on a cooperative program within a reasonable time period specified by the State Board or Regional Board.

MANAGEMENT AGENCY AGREEMENT BETWEEN THE
STATE WATER RESOURCES CONTROL BOARD, STATE OF CALIFORNIA
AND THE FOREST SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE

This Management Agency Agreement is entered into by and between the State Water Resources Control Board, State of California (State Board), and the Forest Service, United States Department of Agriculture (Forest Service), acting through the Regional Forester of the Pacific Southwest Region, for the purpose of carrying out portions of the State's Water Quality Management Plan related to activities on National Forest System (NFS) lands.

WHEREAS:

1. The Forest Service and the State Board mutually desire:

   (a) To achieve the goals in the Federal Water Pollution Control Act, as amended;

   (b) To minimize duplication of effort and accomplish complementary pollution control programs;

   (c) To implement Forest Service legislative mandates for multiple use and sustained yield to meet both long- and short-term local, state, regional, and national needs consistent with the requirement for environmental protection and/or enhancement; and

   (d) To assure control of water pollution through implementation of Best Management Practices (BMPs).

2. The State Board and the Regional Water Quality Control Boards are responsible for promulgating a Water Quality Management Plan pursuant to the Federal Water Pollution Control Act, Section 208, and for approving water quality control plans promulgated by the Regional Water Quality Control Boards pursuant to state law. Both types of plans provide for attainment of water quality objectives and for protection of beneficial uses.

3. The State Board and the Regional Water Quality Control Boards are responsible for protecting water quality and for ensuring that land management activities do not adversely affect beneficial water uses.

4. Under Section 208 of the Federal Water Pollution Control Act, the State Board is required to designate management agencies to implement provisions of water quality management plans.

5. The Forest Service has the authority and responsibility to manage and protect the lands which it administers, including protection of water quality thereon.

6. The Forest Service has prepared a document entitled "Water Quality Management for National Forest System Lands in California" (hereafter referred to as the Forest Service 208 Report), which describes current Forest Service practices and procedures for protection of water quality.

7. On August 16, 1979, the State Board designated the Forest Service as the management agency for all activities on NFS lands effective upon execution of a management agency agreement.

**NOW, THEREFORE, the parties hereto agree as follows:**

1. The Forest Service agrees:

   (a) To accept responsibility of the Water Quality Management Agency designation for NFS lands in the State of California.

   (b) To implement on NFS lands statewide the practices and procedures in the Forest Service 208 Report.

   (c) To facilitate early State involvement in the project planning process by developing a procedure which will provide the State with notification of and communications concerning scheduled, in-process, and completed project Environmental Assessments (EAs) for projects that have potential to impact water quality.

   (d) To provide periodic project site reviews to ascertain implementation of management practices and environmental constraints identified in the EA and/or contract and permit documents.

   (e) To review annually and update the Forest Service documents as necessary to reflect changes in institutional direction, laws and implementation accomplishment as described in Section IV of the Forest Service 208 Report. A prioritization and schedule for this updating is provided in Attachment A to this Agreement.

   (f) That in cases where two or more BMPs are conflicting, the responsible Forest Service official shall assure that the practice selected meets water quality standards and protects beneficial uses.

   (g) That those issues in Attachment B to this agreement have been identified by the State and/or Regional Boards as needing further refinement before they are mutually acceptable to the Forest Service and the State Board as BMPs.

2. The State Board agrees:

   (a) The practices and procedures set forth in the Forest Service 208 Report constitute sound water quality protection and improvement on NFS lands, except with respect to those issues in Attachment B. The State and Regional Boards will work with the Forest Service to resolve those issues according to the time schedule in Attachment B.

   (b) That Section 313 of the Federal Water Pollution Control Act mandates federal agency compliance with the substantive and procedural requirements of state and local water pollution control law. It is contemplated by this agreement that Forest Service reasonable implementation of these practices and procedures and of this agreement will

2. (b) (cont.)

constitute compliance with Section 13260, subdivision (a) of Section 13263, and subdivision (b) of Section 13264, Water Code. It is further contemplated that these provisions requiring a report of proposed discharge and issuance of waste discharge requirements for nonpoint source discharges will be waived by the Regional Board pursuant to Section 13269, Water Code provided that the Forest Service reasonably implements those practices and procedures and the provisions of this agreement. However, waste discharges from land management activities resulting in point source discharges, as defined by the Federal Water Pollution Control Act, will be subject to NPDES permit requirements, since neither the State Board nor the Regional Board has authority to waive such permits.

(c) That implementation will constitute following the Implementation Statement, Section I of the Forest Service 208 Report.

3. It is mutually agreed:

(a) To meet no less than annually to maintain coordination/communication, report on water quality management progress, review proceedings under this agreement, and to consider revisions as requested by either party.

(b) To authorize the respective Regional Boards and National Forests to meet periodically, as necessary, to discuss water quality policy, goals, progress, and to resolve conflicts/concerns.

(c) That the development and improvement of BMPs will be through a coordinated effort with federal and state agencies for adjacent lands and areas of comparable concern.

(d) To meet periodically, as necessary, to resolve conflicts or concerns that arise from and are not resolved at the Forest and Regional Board meetings. Meetings may be initiated at the request of either party, a National Forest, or a Regional Board.

(e) To coordinate present and proposed water quality monitoring activities within or adjacent to the National Forests and to routinely make available to the other party any unrestricted water quality data and information; and to coordinate and involve one another in subsequent/continuing water quality management planning and standard development where appropriate.

(f) That nothing herein shall be construed in any way as limiting the authority of the State Board or the Regional Boards in carrying out their legal responsibilities for management or regulation of water quality.

3. (cont.)

(g) That nothing herein shall be construed as limiting or affecting in any way the legal authority of the Forest Service in connection with the proper administration and protection of National Forest System lands in accordance with federal laws and regulations.

(h) That this Agreement shall become effective as soon as it is signed by the parties hereto and shall continue in force unless terminated by either party upon ninety (90) days notice in writing to the other of intention to terminate upon a date indicated.

IN WITNESS WHEREOF, the parties hereto, by their respective duly authorized officers, have executed this Agreement in duplicate on the respective dates indicated below.

FOREST SERVICE,
U. S. DEPARTMENT OF AGRICULTURE

By _____
Regional Forester
Pacific Southwest Region

Date: 3/17/81

By _____
Regional Forester
Intermountain Region

Date: 4-1-81

By _____
Regional Forester
Pacific Northwest Region

Date: 5-26-81

STATE WATER RESOURCES CONTROL BOARD
STATE OF CALIFORNIA

By _____
Executive Director

Date: FEB 26 1981

ATTACHMENT A

## Schedule for Completing the BMPs

| Priority | Best Management Practice | Completion Date (F.Y.) |
|---|---|---|
| 1 | Cumulative Watershed Impacts | '81 |
| 2 | Closure or Obliteration of Temporary Roads (2.26) | '81 |
| 3 | Minimization of Sidecasting (2.11) | '81 |
| 4 | Stabilization of Road Prisms and of Spoil Disposal Areas | '82 |
| 5 | Control of Road Maintenance Chemicals | '83-'86* |
| 6 | Tractor Windrowing on the Contour (5.5) | '83-'86* |
| 7 | Sanitary and Erosion Control for Temporary Camps | '84-'86* |
| 8 | Administering Terms of the U. S. Mining Laws (3.1) | '84-'86* |

* To be firmed up to a specific fiscal year two years in advance at the annual meeting called for in Section 3(a) of this Agreement.

ATTACHMENT B

## Schedule for Resolving Regional Board Issues

| Region | Issue | Completion Date (F.Y.) |
|---|---|---|
| 1 | Herbicide Use (Resolution 80-5) | '81 |
| 1 | Protection of Wild and Scenic Rivers | '82 |

# MANAGEMENT AGENCY AGREEMENT BETWEEN THE WATER RESOURCES CONTROL BOARD, THE BOARD OF FORESTRY, AND THE DEPARTMENT OF FORESTRY AND FIRE PROTECTION, STATE OF CALIFORNIA

This Management Agency Agreement (Agreement) is entered into by and between the State Water Resources Control Board (Water Board), the State Board of Forestry (BOF), and the State Department of Forestry and Fire Protection (Department, CDF), State of California, for the purpose of carrying out, pursuant to Section 208 of the Federal Clean Water Act, those portions of the State's Water Quality Management Plan related to silvicultural activities on nonfederal lands in the State of California.

WHEREAS:

1. The Board of Forestry has the authority and responsibility, pursuant to the State's Z'berg-Nejedly Forest Practice Act, to promulgate Forest Practice Rules (Rules) and policies to specify practices related to timber operations on non-federal lands in order to restore, enhance and maintain the maximum sustained production of high-quality timber while giving consideration to other natural resources, including the quality and beneficial uses of water.

2. The Department has the authority and responsibility to administer these Rules and policies.

3. The Water Board and the Regional Water Quality Control Boards (Regional Boards) have the authority and responsibility, pursuant to the State Porter-Cologne Act and the Federal Clean Water Act (as amended), to promulgate Water Quality Management (WQM) plans and water quality control plans (Basin Plans) which set forth objectives for restoring, enhancing, and maintaining the quality and beneficial uses of the State's waters, to promulgate regulations and policies to attain these objectives, and to administer these regulations and policies to ensure that waste discharges, including those from silvicultural activities, do not degrade the quality and beneficial uses of the State's waters.

4. The Water Board has the authority and responsibility, pursuant to Section 208 of the Federal Clean Water Act and Title 40, Part 35, Subchapter G, of the Code of Federal Regulations, to designate appropriate management agencies for implementing certain provisions of 208 WQM plans and to certify 208 WQM plans which incorporate Best Management Practices (BMPs) for control of nonpoint sources of pollution, including silvicultural land uses.

5. The Board of Forestry, the Department and the Water Board mutually desire:

   a. To achieve the goals of the Federal Clean Water Act (as amended), of the State Porter-Cologne Act, and of the State Z'berg-Nejedly Forest Practice Act by restoring, enhancing, and maintaining the quality and beneficial uses of the State's waters;

   b. To achieve the water quality objectives set forth in applicable Basin Plans of the State;

   c. To minimize duplication of effort and to establish complementary resource protection programs; and

   d. To assure protection of the quality and beneficial uses of the State's waters through development and implementation of BMPs.

6. The Board of Forestry has promulgated, and the Department administers, Rules which are intended to be BMPs for protection of the quality and beneficial uses of the State's waters from waste discharges due to timber operations on nonfederal lands. The BOF has requested certification of these Rules and the procedures (Process) by which they are promulgated and implemented.

7. On January 21, 1988 and effective upon execution of this Agreement, the Water Board designated the Board of Forestry and the Department as joint management agencies for timber operations on nonfederal lands in the State and certified a 208 WQM plan consisting of: (a) the water quality-related Rules effective through December 31, 1986 (See Item C. 1.), (b) the Process by which they are promulgated and implemented, and (c) this Agreement.

NOW, THEREFORE, the parties hereto agree as follows:

A. The Board of Forestry agrees:

   1. To refine, continue to develop, and adopt BMPs based on consideration of the potential for protecting the quality and beneficial uses of water, technical soundness, and economic and institutional feasibility, in accordance with the Forest Practice Act and with the issues and anticipated schedules set forth in the following attachments:

Attachment A - ITEMS FOR DEVELOPMENT
Attachment B - ITEMS FOR REFINEMENT
Attachment C - ITEMS FOR FURTHER CONSIDERATION

2. That BOF in consultation with the interagency liaison committee (as described in Item D. 8. et. seq.) and others, will approach each issue in Attachments A and B by defining the problem, stating suggested solutions, drafting Rule language and presenting any alternative non-rule approaches which would implement such solutions. Recommendations will be referred through the BOF chairman to the appropriate BOF committee and then, as appropriate, to the BOF District Technical Advisory Committees (DTACs). The DTACs will then review issues and make recommendations after hearing from the public, industry, and concerned agencies. The DTACs' recommendations will be reported to the BOF.

   Following receipt of recommendations from DTACs and/or other appropriate committees, BOF will, as part of its regular agenda (including public hearings), do the following in accordance with the anticipated schedules in Attachments A and B:

   a. Evaluate any recommended Rule language and adopt that found to be appropriate;

   b. Evaluate any recommended non-Rule approaches, and in cooperation with other appropriate parties, affect implementation of those found to be appropriate; and

   c. Report results to the Water Board in accordance with Items B.4 and B.5 below.

B. The Board of Forestry and the Department jointly agree:

   1. To each accept designation as, and the responsibilities of, a water quality management agency for timber operations on nonfederal lands in the State of California.

   2. To consider, in consultation with the interagency liaison committee (as described in Item D. 7. et. seq.) and others, the best means of resolving issues regarding improvement of BMPs and their implementation which are set forth in Attachment C and to develop and implement appropriate improvements.

   3. To develop and carry out improved auditing of agency performance in implementing BMPs.

4. To jointly provide progress reports at Water Board workshops regarding resolution of the issues specified herein:

   a. Semi-annually for the first two years following the date of certification; and

   b. As mutually deemed necessary thereafter, but not more frequently than semi-annually.

5. To submit, with the annual BOF report to the Legislature, a concurrent written report to the Water Board which:

   a. Summarizes the following:

      (1) Progress in resolving issues in accordance with any attachment hereto,

      (2) Any significant additions, deletions, or amendments of the laws, Rules and Process which have or will become effective after January 1, 1987 and which may affect protection of the quality and beneficial uses of water, with explanation for each such change, and

      (3) The results of any agency studies or audits of the performance of foresters, timber operators, and agency personnel, and of the Rules and implementation Process; and

   b. Presents any suggestions for needed studies and for changes in the Rules, the Process, or in this Agreement.

C. The Water Board agrees:

1. That those provisions of the Rules which were in effect before January 1, 1987, and which are set forth in the following Subchapters and Articles of the California Administrative Code, Title 14, Division 1.5, Chapter 4 constitute BMPs:

   Subchapter 1 (Abbreviations and Definitions)

   Article 1

Subchapters 4, 5, and 6 (Coast, Northern, and Southern Forest Districts, respectively)

Article 2 (Definitions, Ratings, and Standards),
Article 3 (Silvicultural Methods),
Article 4 (Harvesting Practices and Erosion Control), and
Article 6 (Watercourse and Lake Protection)

Subchapter 4 (Coast Forest District)

Article 11 (Coastal Commission Special Treatment Areas), and

Article 12 (Logging Roads and Landings)

Subchapters 5 and 6 (Northern and Southern Forest Districts, Respectively)

Article 11 (Logging Roads and Landings)

2. That this Agreement, together with the Rules referenced in Item C.1 above, and the Process (including interagency Review Teams) constitute a 208 WQM plan for control of nonpoint source pollution from timber operations on nonfederal lands which:

   a. Is consistent with relevant provisions of the State/EPA Agreement and Work Program, Federal regulations, and the Federal Clean Water Act;

   b. Is technically sound and economically feasible;

   c. Is consistent with other relevant and approved WQM plans; and

   d. Represents substantial progress toward achievement of water quality goals.

3. To review the annual written report specified in Item B.5, and to identify any concerns regarding protection of water quality due to changes in the Rules or Process made or proposed by BOF and/or CDF.

4. To direct Regional Boards, upon EPA approval of the 208 WQM plan, to cease issuance of Waste Discharge Requirements for timber operations on nonfederal lands except as provided in Section 4514.3 of the Public Resources Code.

D. The Water Board, the Board of Forestry, and the Department agree:

1. That Rule modifications or other means to resolve, in a manner acceptable to the parties hereto, the issues set forth in Attachments A and B will be pursued through normal BOF procedures.

2. That resolution of the issues in Attachment C will be pursued in a manner acceptable to the parties hereto, after further study.

3. That improved methods for implementing BMPs shall be developed and carried out as follows:

   a. Implementation of guidance documents developed in accordance with Attachment D shall begin within 2 years after the effective date of certification or as soon thereafter as feasible;

   b. Training and education programs, and participation therein, shall be pursued on a continuing basis in accordance with Attachment E; and

   c. State agency procedures which are acceptable to the parties hereto and which are developed in accordance with Attachment F shall be incorporated into appropriate Memoranda of Understanding (MOUs) within one year after the effective date of certification.

4. That improved private sector procedures for implementing BMPs shall be encouraged on a continuing basis in accordance with Attachment G.

5. That additional studies to further assess the effects of timber operations on water quality and to provide for continued evaluation, development, and improvement of BMPs and their implementation shall be developed in accordance with Attachment H. Study workplans will be submitted to the parties no more than 2 years after the effective date of certification or as soon thereafter as feasible.

6. That the development and implementation of BMPs and the additional studies conducted by the parties hereto shall be coordinated with concerned state agencies, especially the Department of Fish and Game (DFG) and Regional Boards, with Federal agencies, with BOF DTACS, and with the private sector.

7. That activities needed to carry out Items D.1 through D.5 above shall begin within 30 days after the effective date of certification.

8. That the Chairpersons of BOF and the Water Board (or another Board member) and the Director of CDF shall serve as an interagency liaison committee, and the Director of DFG shall be invited to serve with them.

9. That each agency liaison shall:

   a. Designate an alternate liaison member, if necessary; and

   b. Coordinate the activities of the designating agency as set forth herein with the activities of the other parties hereto, as well as with DFG, Regional Boards, and Federal agencies.

10. That the liaison committee shall seek mutually acceptable technical support, as needed.

11. That the liaison committee members shall meet no less than annually to maintain coordination and communication, to review and discuss the BOF/CDF annual report, to review activities under this agreement, and to consider any revisions to this Agreement, including anticipated target dates and schedules, which are requested by any party hereto. The Director of DFG, or an authorized representative, shall be invited to participate in such meetings.

12. That the parties hereto shall work together to resolve any conflicts which may arise.

13. That representatives of Regional Boards and CDF Regions shall meet with each other, and with DFG representatives, as needed to resolve conflicts and concerns, and shall submit brief written summaries of the reasons for and results of such meetings to the designated liaison in each agency.

14. That the liaison committee shall meet as necessary to resolve conflicts or concerns which arise from and are not resolved by other meetings or reports. Meetings may be initiated at the request of the Executive Director of BOF and the Water Board, the Director of CDF and DFG, or the Executive Officer of a Regional Board.

15. That this Agreement may be terminated upon a 90 day notice by either board.

16. That another multidisciplinary assessment, in a mutually accepted format, of the adequacy of the Rules and the Process shall be conducted by the parties hereto not more than 5 years after certification. DFG shall be invited to participate in such assessment.

17. That, based on the results of said assessment, certification of the Rules and Process as part of a 208 WQM plan shall be formally reviewed no more than 6 years from the date of certification.

18. That future assessments and related review of certification may again be carried out at such time thereafter as may be mutually agreed upon among the parties.

19. That 208 WQM plan certification or management agency designation shall be reviewed in one or more Water Board hearings under any of the following conditions:

    a. If, for other than financial reasons, the assessments specified herein cannot be implemented;

    b. If, at any time, there is substantial evidence that BOF or CDF have failed to maintain a water quality regulatory program consistent with certification or have failed to satisfy terms of this Agreement; or

    c. If BOF requests such a review.

20. That, except for the provisions of Item C.4 above, nothing herein shall be construed in any way as limiting the legal authority or responsibility of the Water Board or Regional Boards in carrying out their mandates for control of water pollution and protection of the quality and beneficial uses of the State's waters.

21. That nothing herein shall be construed in any way as limiting the legal authority or responsibility of the Board of Forestry or of the Department in carrying out their mandates for regulation of timber and other natural resources on nonfederal lands.

IN WITNESS WHEREOF, the parties hereto, by their respective duly authorized officers, have executed this Agreement in triplicate, on the respective dates indicated below.

STATE BOARD OF FORESTRY,
STATE OF CALIFORNIA

By Harold R. Walt
Harold R. Walt,
Chairman

Date: 2/3/88

STATE WATER RESOURCES CONTROL BOARD
STATE OF CALIFORNIA

By W. Don Maughan
W. Don Maughan,
Chairman

Date: FEB 1 1988

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
STATE OF CALIFORNIA

By Jerry Partain
Jerry Partain,
Director

Date: Feb 3, 1988

## ATTACHMENT A

## ITEMS FOR DEVELOPMENT

(These issues are not covered by current Rules. Consistent with the process set forth in Item A.2, language for new Rules will be proposed, evaluated and, if appropriate, adopted by BOF. Non-Rule resolutions will also be evaluated and, if appropriate, implemented.)

| | Issue | | Suggested Resolution | | Target Date |
|---|---|---|---|---|---|
| 1. | Practices for site preparation after timber harvesting | 1. | Regulation of site preparation activities pursuant to AB 1629 (Statute 87; Chapter 987). | 1. | 11/88 |
| 2. | Long-term maintenance of erosion control facilities | 2. | Regulation of long-term maintenance of erosion control facilities in logging area pursuant to AB 1629 (Statute 87; Chapter 987). | 2. | 11/88 |
| 3. | Evaluation of cumulative watershed effects | 3. | Improved requirements and procedures for evaluating cumulative effects. | 3. | 12/88 |
| 4. | Notification of startup date of operations | 4. | Requirement that licensed timber operator (LTO) or landowner notify CDF of actual date logging starts. | 4. | 12/89 |
| 5. | Timber operator licensing requirements | 5. | Requirements for mandatory training for timber operator's license. | 5. | 12/89 |

ATTACHMENT B

ITEMS FOR REFINEMENT

(These issues are at least partially covered by existing Rules. Consistent with the process set forth in Item A.2, Rule language to refine and supplement the existing Rules will be proposed, evaluated and, if appropriate, adopted by BOF. Non-Rule resolutions will also be evaluated and, if appropriate, implemented.)

| | Issue | | Suggested Resolution | | Target Date |
|---|---|---|---|---|---|
| 1. | Transfer of Timber Harvesting Plan (THP) information from preparer to LTO | 1. | Pre-operation meeting between THP preparer and timber operator, and operator's signature on any THP or amendment. | 1. | 9/88 |
| 2. | Extra protection measures where tractor operations, or roads or landings are near or within standard watercourse and lake protection zone (WLPZ) widths or on very highly erodible slopes | 2. | THP specification of extra protective measures. | 2. | 12/88 |
| 3. | Performance standard for planning, locating, constructing, and maintaining all roads to protect water-related values | 3. | Improved language in 14 CAC 923, 943, 963 to provide enforceable protection performance standards. | 3. | 12/88 |
| 4. | Road and landing construction standards | 4. | Additional specifications for road and landing construction standards. | 4. | 12/89 |
| 5. | Temporary road crossing removal | 5. | Improved specifications for appropriate removal procedures. | 5. | 12/88 |
| 6. | Disposal of landing debris over edge of landing above water courses | 6. | Improved requirements for disposal of landing debris. | 6. | 12/88 |

| Issue | Suggested Resolution | Target Date |
|---|---|---|
| 7. Alternative protection practices | 7. Clarification of Section 916.2(c), 936.2(c), 956.2(c) regarding "feasible practices" and "adequate protection". | 7. 12/88 |
| 8. Vegetative canopy and structure in WLPZ | 8. Improved criteria and methods for retaining vegetative canopy within WLPZ and for retaining riparian vegetation. | 8. 12/88 |
| 9. Ground cover retention in WLPZ | 9. Improved language in 14 CAC 916.5e, 936.5e, 956.5e, to require retention of adequate ground cover. | 9. 12/88 |
| 10. Terms used in determination of WLPZ width | 10. Rule definitions for "bank" and "change in slope". | 10. 12/88 |
| 11. Flood prone area protection | 11. Inclusion of flood prone areas in WLPZ and/or extra protection to prevent erosion or debris flotation. | 11. 12/88 |
| 12. Determination of WLPZ width and protection measures | 12. Inclusion of geological, hydrological and biological factors in determining appropriate WLPZ width and protection measures. | 12. 12/88 |
| 13. Standards for existing roads | 13. Application of new-road standards for drainage facilities, ditch drains, soil stabilization, etc., to existing roads. | 13. 12/88 |

| Issue | Suggested Resolution | Target Date |
|---|---|---|
| 14. Domestic water supply protection | 14. Requirements for: (a) protection for water supply springs and pipelines, and identification in THP; (b) identification of potable water supplies within an appropriate distance downstream from operation; (c) notification of THP filing to the owners of such water supplies; and (d) protection for likely potential and restorable human uses. | 14. 12/88 |
| 15. Clear, enforceable performance standards for water quality protection | 15. Clarification of intent Sections 914, 916, 934, 936, 954, and 956, to provide clear, enforceable performance standards. | 15. 12/89 |
| 16. Skid trail erosion control requirements | 16. Requirements for: (a) extra protective measures where skid trails are close to other skid trails, roads and landings; (b) temporary road maintenance and abandonment provisions when skid trails are equivalent to a temporary road; and (c) application of temporary road crossing, drainage stabilization and removal provisions to temporary skid trail crossings. | 16. 12/89 |

| Issue | Suggested Resolution | Target Date |
|---|---|---|
| 17. Winter operations procedures | 17. THP justification for using 914.7c, 934.7c, 954.7c, in lieu of a winter operating plan. | 17. 12/89 |
| 18. Sensitive area operations | 18. THP specification of methods and equipment for road and landing construction, disposal, drainage, stabilization, maintenance, and abandonment. | 18. 12/89 |
| 19. Erosion control on roads | 19. Requirements for: (a) THP specification of erosion and drainage control on road crossings; (b) THP specification measures to prevent or reduce future failure of road areas being reconstructed; and (c) improved seasonal abandonment of temporary roads. | 19. 12/89 |

## ATTACHMENT C

## ITEMS FOR FURTHER CONSIDERATION

(These issues need further study to determine the most appropriate resolutions. Both Rule and non-Rule approaches will be considered. Evaluation of Rule language will occur consistent with the process set forth in Item A.2.)

| | Issue | | Suggested Resolution | | Target Date |
|---|---|---|---|---|---|
| 1. | Erosion hazard rating | 1. | Improved use of erosion hazard rating system and minor adjustments to rating system. | 1. | 12/89 |
| 2. | Retention of riparian hardwood and non-commercial trees | 2. | Improved treatment of riparian hardwoods and noncommercial trees, especially after conifer harvest. | 2. | 12/89 |
| 3. | Registered Professional Forester (RPF) responsibility | 3. | Evaluation of: (a) increased RPF accountability for THP adequacy; (b) addition of RPF supervision and (c) reevaluation of present rules for suspension or revocation of RPF and LTO licenses for serious violations of the Rules. | 3. | 12/89 |
| 4. | Repeal of 14 CAC 898.2e | 4. | Consider reinstatement 14 CAC 898.2e which required denial of THPs if implementation would violate state or federal standards. | 4. | 12/89 |
| 5. | Culvert sizing | 5. | THP specification of culvert sizing method used. | 5. | 12/89 |
| 6. | Agency disagreement over approval of plan | 6. | Provide dispute resolution procedure through MOU or consider head-of-agency appeal. | 6. | 12/88 |

| | Issue | | Suggest Resolution | | Target Date |
|---|---|---|---|---|---|
| 7. | Confusion over meaning of "in lieu" practice | 7. | Evaluate use of "in lieu" concept in Rules. | 7. | 12/88 |
| 8. | Agency consultation prior to approving in-stream cleanup | 8. | Provide for such consultation through MOU | 8. | 12/88 |
| 9. | Improved participation by public and nonreview agencies in review process | 9. | Improved procedures for participation | 9. | 12/88 |
| 10. | Reevaluation by review team after response by RPF | 10. | Provide for such re-evaluation through MOU | 10. | 12/88 |
| 11. | Point of RPF transfer of responsibility to LTO | 11. | Study need for Rule. | 11. | 12/89 |
| 12. | Recognition of and protection against mass wasting hazard | 12. | Improved criteria and methods for evaluating and protecting against mass wasting hazard. | 12. | 12/89 |
| 13. | Use of guidance documents | 13. | Requirements for use of guidance documents (if necessary) after development of documents. | 13. | 12/89 |

## ATTACHMENT D

## DEVELOPMENT AND IMPLEMENTATION OF GUIDANCE DOCUMENTS TO COMMUNICATE INFORMATION TO PRACTITIONERS

A. Develop or improve guidance documents on the following topics:

1. Criteria and methods for identifying and evaluating (or rating) the following types of sensitive areas or conditions:

   a. Erodible and unstable slopes;
   b. Near-stream geological and hydrological conditions;
   c. Near-stream biological conditions, including riparian zone, canopy cover, and windthrow potential;
   d. Instream structure, habitat, and wildlife value; and
   e. Offsite beneficial uses of water.

2. Criteria and methods for evaluating potential adverse effects and for selecting measures to protect any of the above from adverse effects of:

   a. Felling, yarding, and stream clearing activities;
   b. Road and landing location, construction, and maintenance; and
   c. Site preparation activities; and
   d. Cumulative watershed effects.

3. Criteria and methods for road and landing construction, maintenance and abandonment.

4. THP content needed to:

   a. Describe the following:

      (1) site environmental conditions,
      (2) proposed practices, especially if non-standard, and
      (3) probable environmental effects of practices;

   b. Describe and justify proposed protection measures; and

   c. Set forth the above in a manner which provides for:

      (1) thorough disclosure and environmental review,
      (2) clear and comprehensive guidance to LTOs and other responsible parties, and
      (3) specific and enforceable standards.

B. Determine the most effective and appropriate methods of assuring use of the guidance documents, considering the following:

1. Incorporation into training and education programs;
2. Promotion through professional meetings and publications;
3. Implementation by THP review teams;
4. Amendment of THP forms to demonstrate use where appropriate;
5. Amendment of Rules to require use; and
6. Adoption as Technical Rule Addendum.

C. In carrying out the above, perform the following tasks:

1. Compile and review available reference material to determine whether, for each subject area, available material is adequate, can be readily supplemented, or whether new guidance documents are needed.

2. Determine the need for additional financial and administrative assistance, for scientific or technical assistance, and/or for additional studies in order to carry out the foregoing tasks.

## ATTACHMENT E

## IMPROVEMENT AND DEVELOPMENT OF TRAINING AND EDUCATION PROGRAMS

A. Continue to develop and upgrade training and education programs on the topics set forth in Attachment D and on any other topics deemed appropriate by the liaison committee.

B. In carrying out the above, the following tasks are recommended:

1. Review existing programs and training materials to determine whether, for each topic, existing programs are adequate, could be adequately supplemented, and/or whether new programs are needed.

2. Determine the most important training and education needs of:

   a. Foresters involved in planning, supervising, or monitoring timber operations;

   b. Non-foresters (agency personnel) involved in planning, reviewing, inspecting, and monitoring timber operations;

   c. Timber operators, timber owners, and other parties responsible for operations and environmental protection.

3. Determine the most appropriate program formats and materials (e.g., guidelines, handouts, video cassettes, seminars, workshops, tailgate sessions, etc.).

4. Determine the most appropriate parties (including review team agency representatives) to develop and present program materials.

5. Determine any administrative and financial needs and feasible methods for satisfying these needs.

6. Determine the most appropriate methods of encouraging participation (e.g., credits toward education requirements, payment or waiver of fees, etc.).

C. Continue to update training programs to meet changing needs.

## ATTACHMENT F

## INTERAGENCY PROCEDURES FOR BMP IMPLEMENTATION

A. Determine appropriate interagency procedures for each of the following:

1. Improved training programs in forestry and protection of water-related values for Review Team agencies and assuring adequate agency participation.

2. Procedures by which Review Team agencies shall more consistently seek and provide consultation before, during, and after timber operations, giving special consideration in the following:

   a. Appropriate use of watercourse classification system, especially for Class II and III watercourses;

   b. Sensitivity of onsite geological, hydrological, and biological conditions which may affect water-related values;

   c. Probable effects of timber operations on sensitive conditions and water-related values, especially where:

      (1) Yarding, roads, or landings will be, are or were within or close to standard WLPZ widths, reducing density of ground cover or canopy cover,

      (2) Sensitive geological, hydrological, or biological conditions exist onsite which are likely to be disturbed by operations,

      (3) Non-standard practices will be, are, or were used, and

      (4) Special concerns have been raised;

   d. Appropriateness of practices and protection measures which may be, are, or were used.

3. Procedures to provide for cooperative monitoring studies to better determine the effects of forest practices, especially under the conditions listed in Item A.2.

4. Access by DFG and Regional Board representatives onto nonfederal timberlands.

5. Improved procedures for assuring the adequacy of THP content.

6. Improved procedures for THP review, including the following:

   a. Increased review agency attendance at Review Team meetings and preharvest inspections;

   b. Increased participation by public and non-Review Team agencies in Timber Harvesting Plan review;

   c. Increased review times if needed;

   d. Review Team re-evaluation of any post-review changes made to THP between review and approval of THP; and

   e. Improved resolution of conflicts between representatives of Review Team agencies, including a stepwise time-certain process for negotiating or appealing disagreements to higher levels of authority within each agency.

7. Procedures to improve operator compliance with Rule and THP requirements, including the following:

   a. Increased use of unannounced inspections;
   b. Increased use of inspections focused on operations in sensitive areas which may threaten water-related values;
   c. Increased participation in compliance inspections by other Review Team representatives;
   d. Increased and improved inspection of road construction practices; and
   e. Increased use of DFG and Regional Boards in support of CDF enforcement actions.

B. Incorporate appropriate improvements in agency procedures into any needed and mutually acceptable MOUs (or other agreements) which specify:

1. The authority and responsibility (including decision-making and advisory roles) given to each agency for implementing such improvements; and

2. The levels of adequately trained staff and other resources to be maintained by each agency in order to implement these improvements.

## ATTACHMENT G

## DEVELOPMENT AND IMPROVEMENT OF VOLUNTARY PROCEDURES FOR PRIVATE SECTOR BMP IMPLEMENTATION

A. Encourage adoption of clear comprehensive policy statements by landowners, companies and/or professional associations by doing the following:

1. Working with representatives of the timber industry and related professional associations to assist in development of policy statements regarding environmental protection for use by the private sector.

2. Where feasible, developing key concepts and suggested language for incorporation into policy statements.

B. Encourage private sector implementation of BMPs by suggesting feasible procedures, such as the following:

1. Encouraging foresters to more frequently consult with other subject matter experts when warranted.

2. Training employees using appropriate techniques.

3. Improving communication between foresters and operators regarding desired site-specific environmental results of operations.

4. Improving and standardizing flagging and marking codes used in site layout to assist operator.

5. Improving supervision of operations by foresters.

6. Improving inhouse monitoring of effects of operations to ensure that desired results are being achieved.

7. Improving auditing of operator performance.

8. Improving self-policing within industry and professional associations of persons who repeatedly violate environmental protection policies.

## ATTACHMENT H

## DEVELOPMENT AND IMPLEMENTATION OF PROGRAMS FOR ADDITIONAL STUDIES

A. Study appropriate criteria and methods for evaluating or rating sensitive conditions listed in Attachment D, Item A.

B. Develop and conduct studies of the best feasible methods for the following:

1. Establishing natural resource databases which are:

   a. Located in state agencies (including DFG, CDMG, CDF, Water Board, and Regional Boards) and Federal agencies involved with natural resource management.

   b. Mutually compatible in structure and format in order to facilitate interagency use;

   c. Capable of using the existing files, databases, and unorganized information currently in the State agencies, and, to the degree feasible, in Federal agencies, educational institutions, and the private sector;

   d. Capable of expanding to incorporate new information developed by additional studies of natural resources;

   e. Accessible to users in the private sector, educational institutions, and Federal agencies;

   f. Descriptive of the characteristics and geographical distribution of geologic, topographic and climatic features, soils, vegetation, animals, wildlife habitats, land uses (past, present, and potential), water quality, and beneficial uses.

2. Establishing watershed planning programs which are:

   a. Capable of facilitating evaluation of the location and sensitivity of unstable or erodible slopes, near-stream geological, hydrological, and biological conditions, instream or lacustrine aquatic habitats, and human uses of water; and

   b. Capable of facilitating evaluation of the probable effects of alternative courses of action or combinations of activities within a watershed.

C. Study criteria and methods for evaluating actual and potential cumulative watershed effects. The methods shall be:

1. Feasible and reasonably accurate.

2. Mutually acceptable to State and Federal agencies and capable of being used in areas of mixed Federal and nonfederal ownership of land.

3. Capable of evaluating contributions to cumulative effects from every significant land use or activity within a watershed.

4. Capable of evaluating the variability of individual cumulative effects with time and location.

D. Study long-term effects on mass wasting and water-related values caused by timber harvesting and related activities, especially in sensitive near-stream locations.

MEMORANDUM OF AGREEMENT
BETWEEN THE
STATE WATER RESOURCES CONTROL BOARD
AND THE
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

## Purpose

The purpose of this Memorandum of Agreement (MOA) is to outline the procedures for reporting proposed oil, gas, and geothermal field discharges and for prescribing permit requirements. These procedures are intended to provide a coordinated approach resulting in a single permit satisfying the statutory obligations of both parties to this MOA. These procedures will ensure that construction or operation of oil, gas, and geothermal injection wells and surface disposal of waste water from oil and gas and geothermal production does not cause degradation of waters of the State of California.

## General

### Responsibilities of the Agencies

The Department of Conservation, Division of Oil and Gas (CDOG) has the statutory responsibility to prevent, as far as possible, damage to underground and surface waters suitable for irrigation or domestic purposes resulting from the drilling, operation, maintenance, or abandonment of oil, gas, and geothermal wells (Public Resources Code Sections 3106 and 3714). In March 1983, CDOG received primacy from the Environmental Protection Agency (EPA) pursuant to the provisions of Section 1425(a) of the federal Safe Drinking Water Act that gives CDOG additional authority and responsibility to regulate Class II wells in the State. Class II wells are used to inject fluids into the subsurface that are related to oil and gas production.

The State Water Resources Control Board (SWRCB) and the nine California Regional Water Quality Control Boards (collectively RWQCB) have statutory responsibility to protect the waters of the State and to preserve all present and anticipated beneficial uses of those waters (Water Code, Division 7, Chapters 1 through 7).

### Scope of Agreement

The following procedures have been formulated and adopted by the CDOG and SWRCB to: (1) simplify reporting of proposed waste discharges by the oil, gas, and geothermal operators; (2) achieve coordination of activity; and, (3) eliminate duplication of effort among the State agencies. As far as these agencies are concerned, the method of reporting proposed oil, gas, and geothermal underground injection and surface discharges will be uniform throughout the State. The attached maps show district and regional boundaries and office addresses.

The following procedures will not generally be applicable to injection wells or surface disposal methods used by operators to dispose of wastes other than produced water and fluids defined by the EPA as Class II. Other discharges (e.g., refinery wastes) must be issued waste discharge requirements or waivers through the appropriate Regional Water Quality Control Board (Water Code, Division 7, Chapter 4). Such discharges will not be subject to regulation by CDOG unless the subject disposal well is within the administrative limits of an oil, gas, or geothermal field. In such case, the CDOG must also issue a permit for the well construction (Public Resources Code Sections 3008 and 3203). The conditions of this permit should be in agreement with the waste discharge requirements for this well.

The CDOG personnel shall report all pollution problems, including spills to the ground surface or surface streams, to the appropriate Regional Board.

## Procedures

### Underground Injection

1. Application: Oil, gas, or geothermal operators must file an application for all proposed injection projects with the appropriate CDOG District office. The District office will forward a copy of the application to the appropriate Regional Board for its review and comment. Data to be included with the application shall include: (1) a chemical analysis, as appropriate, to characterize the proposed injection fluid considering the source of the fluid and/or the exposures the fluid has or will undergo before disposal; (2) a chemical analysis, as appropriate, from the proposed zone of injection considering the characteristics of the zone (to include name, location, depth and formation for well from which zone fluid was sampled); and, (3) depth, location, and injection formation of the proposed well. If the Regional Board wishes to comment prior to the issuance of a draft permit for review, comments shall be received by CDOG within 14 days.

2. Review and Consultation: During the review of the application, the CDOG, the Regional Board and the State Board shall consult with one another and local agencies, as necessary, and may require the applicant to submit additional data, as necessary, to demonstrate that the proposed injection will not cause a water quality problem. Additional data required by the RWQCB, if reasonably available, shall be forwarded upon request. Data regarded as confidential by CDOG, or the applicant, will be identified and kept confidential by the RWQCB.

3. Permit Preparation and Issuance:

a. CDOG will prepare a draft permit, including monitoring requirements, for the injection in accordance with statutory obligations, furnishing a copy of the draft document to the appropriate Regional Board.

b. The Regional Board will have the opportunity to comment on the draft requirements during the public review period established pursuant to the Memorandum of Agreement (MOA) between the CDOG and the Environmental Protection Agency (EPA).

c. The Regional Board shall determine whether or not the draft requirements provide protection to ground and surface waters having present or anticipated beneficial uses. If the draft requirements are not adequate, the Regional Board shall, within 30 days, propose conditions or revisions which would satisfy Regional Board concerns. CDOG will not issue final requirements until Regional Board concerns have been satisfied.

If no response is received from the Regional Board by the end of the public comment period, the requirements will be presumed to be acceptable to the Regional Board.

CDOG will furnish a copy of the final requirements to the Regional Board.

Surface Discharge

1. Application: The oil, gas, or geothermal operator shall file a Report of Waste Discharge with the appropriate Regional Board. The Regional Board will review the Report of Waste Discharge in accordance with applicable state and federal requirements, including 40 CFR Part 435. No report need be filed when such a requirement is waived by the Regional Board pursuant to Water Code Section 13269.

When a Report of Waste Discharge is not adequate in the judgment of the Regional Board, the Board may require the applicant to supply additional information as it deems necessary. If a surface disposal site is within the administrative limits of an oil, gas, or geothermal field, the Regional Board shall send a copy of the Report of Waste Discharge to the CDOG for review and comment when the report is complete. If CDOG wishes to comment, the Regional Board should receive comments within 14 days to ensure consideration of these comments during the drafting of waste discharge requirements.

2. Preparation and Adoption of Waste Discharge Requirements:

a. The Regional Board will prepare draft waste discharge requirements for the disposal of production waters by surface discharge. If a surface disposal site is within the administrative limits of an oil, gas, or geothermal field, a copy of the draft document shall be furnished to the appropriate CDOG District office.

b. The CDOG shall determine whether or not the draft requirements fulfill CDOG's statutory obligations related to water quality. If the draft requirements are not adequate, the CDOG shall, within 30 days, propose conditions to the Regional Board which would meet these statutory obligations. The Regional Board will not issue final requirements until CDOG concerns have been satisfied.

If no response is received from CDOG by the end of the public comment period, the requirements will be presumed to be acceptable to CDOG. The Regional Board will furnish a copy of the final requirements to CDOG.

Enforcement Coordination

After construction, CDOG will notify the appropriate Regional Board of any pollution problems noticed during its inspection activities. The Regional Boards will notify CDOG of any suspected violations of CDOG requirements uncovered during the Regional Boards' inspection activities.

If a determination is made by CDOG, or by the Regional Board, or the SWRCB, that an injection or surface disposal operation is violating the terms of its permit or is causing an unacceptable water quality problem, the permitting agency shall take any necessary actions to assure that compliance is achieved, or that the practice causing water pollution is abated forthwith. If necessary, the permitting agency shall order work to be done and/or order operation to be halted. Enforcement actions involving both statutory authorities should be coordinated among the parties involved in this MOA, but neither agency is precluded from taking independent enforcement action.

Modification of this Agreement

This agreement will be effective upon signature by the designated parties. The agreement may be modified upon the initiative of either party for the purpose of ensuring consistency with State or Federal statutes or regulations, or for any other purpose mutually agreed upon. Any such modifications must be in writing and must be signed by the Director of the Department of Conservation, the State Oil and Gas Supervisor, and the Chairman of the SWRCB.

| | |
|---|---|
| Randall H. Ward<br>State Department of Conservation | 3-9-88<br>Date |
| M. G. Mefferd<br>State Oil and Gas Supervisor | 3-4-1988<br>Date |
| W. Don Maughan<br>Chairman, State Water Resources Control Board | MAY 19 1988<br>Date |
| James L. Belton<br>Executive Director, State Water Resources Control Board | MAY 19 1988<br>Date |

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION 88- 61

APPROVAL OF AMENDMENTS TO THE MEMORANDUM OF AGREEMENT BETWEEN THE STATE WATER RESOURCES CONTROL BOARD AND THE DEPARTMENT OF CONSERVATION, DIVISION OF OIL AND GAS REGARDING CLASS II INJECTION WELLS

WHEREAS:

1. The State Water Resources Control Board (State Board) and the Department of Conservation, Division of Oil and Gas executed a Memorandum of Agreement (MOA) in August 1982 that outlined the procedures for reporting proposed oil, gas, and geothermal field discharges and the procedures for prescribing permit requirements for said discharges.

2. The CDOG received primacy to administer the federal Underground Injection Control Program for Class II wells in California from the U.S. Environmental Protection Agency (EPA) in March 1983.

3. The EPA revised its classification of materials that are considered Class II fluids in July 1987.

4. The EPA revised classification requires revisions to the MOA for consistency.

5. Additional revisions to the MOA are necessary to clarify procedures.

THEREFORE BE IT RESOLVED:

That the State Board approves the revised MOA with CDOG and directs the Chairman and Executive Director to sign said agreement.

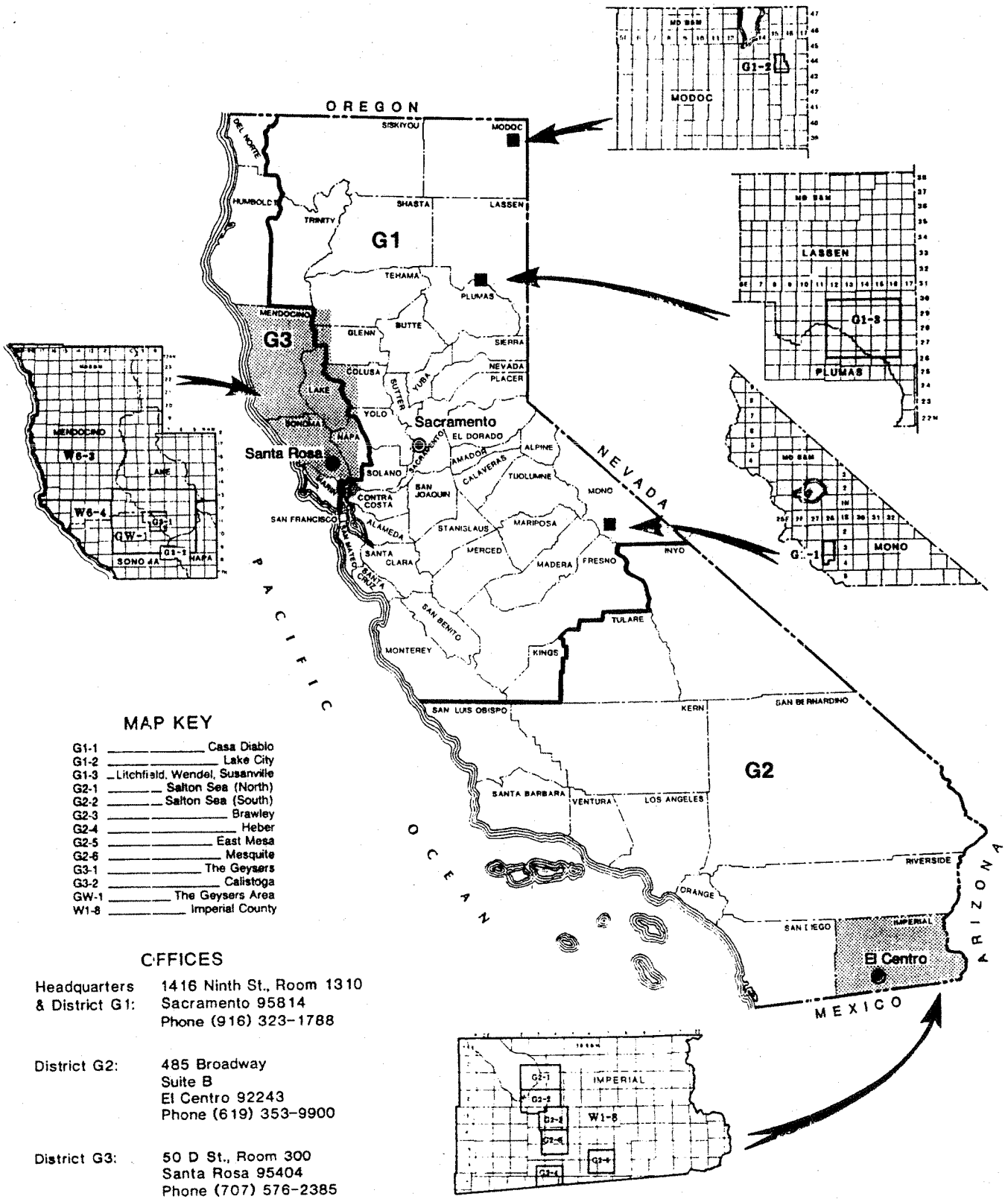
CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on

MAY 19 1988

Maureen Marche'
Administrative Assistant to the Board

# GEOTHERMAL DISTRICT AND FIELD MAPS




## MAP KEY

| | |
|---|---|
| G1-1 | Casa Diablo |
| G1-2 | Lake City |
| G1-3 | Litchfield, Wendel, Susanville |
| G2-1 | Salton Sea (North) |
| G2-2 | Salton Sea (South) |
| G2-3 | Brawley |
| G2-4 | Heber |
| G2-5 | East Mesa |
| G2-6 | Mesquite |
| G3-1 | The Geysers |
| G3-2 | Calistoga |
| GW-1 | The Geysers Area |
| W1-8 | Imperial County |

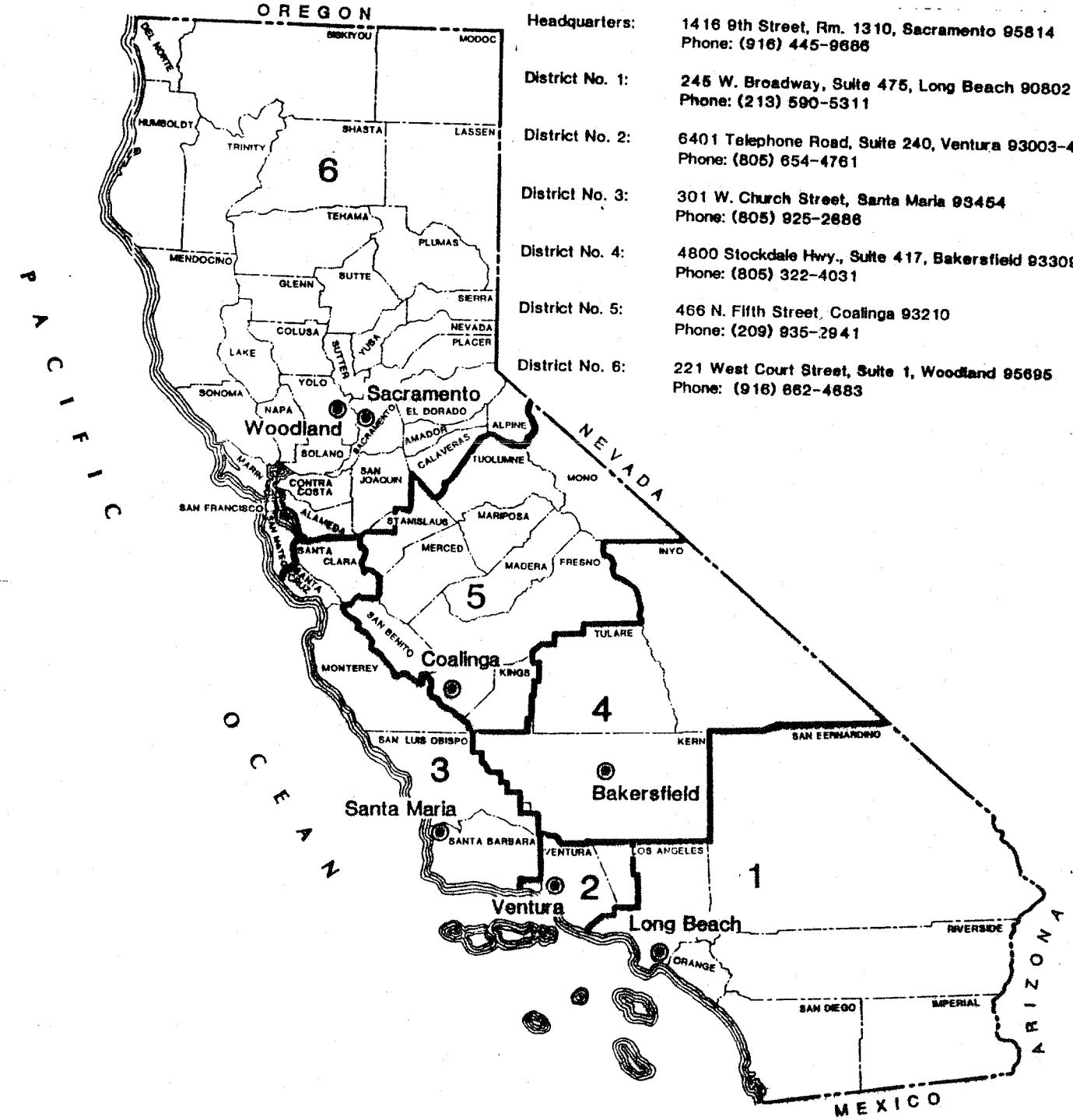
## OFFICES


Headquarters & District G1: 1416 Ninth St., Room 1310
Sacramento 95814
Phone (916) 323-1788

District G2: 485 Broadway
Suite B
El Centro 92243
Phone (619) 353-9900

District G3: 50 D St., Room 300
Santa Rosa 95404
Phone (707) 576-2385

# OIL AND GAS DISTRICT BOUNDARIES




## Offices

| | |
|---|---|
| Headquarters: | 1416 9th Street, Rm. 1310, Sacramento 95814<br>Phone: (916) 445-9686 |
| District No. 1: | 245 W. Broadway, Suite 475, Long Beach 90802<br>Phone: (213) 590-5311 |
| District No. 2: | 6401 Telephone Road, Suite 240, Ventura 93003-4458<br>Phone: (805) 654-4761 |
| District No. 3: | 301 W. Church Street, Santa Maria 93454<br>Phone: (805) 925-2686 |
| District No. 4: | 4800 Stockdale Hwy., Suite 417, Bakersfield 93309<br>Phone: (805) 322-4031 |
| District No. 5: | 466 N. Fifth Street, Coalinga 93210<br>Phone: (209) 935-2941 |
| District No. 6: | 221 West Court Street, Suite 1, Woodland 95695<br>Phone: (916) 662-4683 |

Memorandum of Understanding

Between

Ukiah District
U.S. Bureau of Land Management

and

California Regional Water Quality
Control Board, Central Valley Region

This agreement expresses an understanding made this date between the Bureau of Land Management, Ukiah District, hereinafter referred to as the BLM, and the California Regional Water Quality Control Board, Central Valley Region, hereinafter referred to as the "Board."

Whereas:

The State Water Resources Control Board and Regional Water Quality Control Boards have overall responsibility for water quality protection and, as such, must ensure that land management activities do not cause adverse impacts on beneficial water uses, and

Whereas:

The BLM is responsible for management and protection of the public land,

Therefore:

This agreement is hereby entered into between the BLM and the Board in order to improve and facilitate future coordination between these agencies, thereby ensuring that environmental degradation resulting from actions taken on the BLM lands relating to locatable minerals, solid leasable minerals, and other leasable minerals including oil and gas and geothermal activities in California is minimized.

Agreement

I. Permitting:

1) BLM approval of plans of operations, permits, leases or other use authorization on the BLM lands that involve the potential for a discharge of hazardous wastes or substances [1/] into the environment will be conditioned on the approval by the Board of waste discharge requirements for the proposed activity, when applicable prior to commencement of any discharge.

2) The Board agrees to notify the BLM of the earliest possible time of any new applications for waste discharge requirements or permits for activities located on BLM lands and to provide the BLM with the opportunity to recommend requirements necessary to ensure adequate bonding for site closure, neutralization and surface reclamation, i.e., removal and/or neutralization necessary for full cleanup.

3) BLM agrees to notify the Board of and to circulate documents prepared pursuant to the National Environmental Protection Act (NEPA) which involve the interests of the State, such as the issuance of waste discharge requirements. This action is consistent with the Memorandum of Understanding entered into between the State and BLM on November 23, 1983.

4) BLM will supply lists of mining operations that may involve the use of hazardous materials when 3809 "Notice" has been submitted for a plan of operations (operations under 5 acres), to ensure the Board is aware of all operations occurring on the BLM lands and to ensure that operators required to obtain waste discharge requirements have applied for them.

II. Compliance

1) The Board will provide the BLM with a list identifying the operator/discharger and locations of all sites on BLM lands where hazardous materials are used or stored onsite that are currently regulated under waste discharge requirements.

2) The Board will provide BLM with a list of indicators of potential waste discharge violations that BLM inspectors can use to assist in the identification of potential violations, i.e., lists of the types of indicators at a site that should be noted when performing an inspection.

3) The BLM will notify the Board of any potential violations of waste discharge requirements established by the Board on the BLM lands discovered during routine compliance checks or otherwise brought to the BLM's attention.

4) The Board will provide BLM with a summary of all compliance inspection reports issued for sites on the BLM lands and copies of those reports which document violation.

5) Upon the Board's determination that a violation exists, the Board will take appropriate action to enforce the stipulations found in waste discharge requirements with assistance from BLM.

6) BLM will assist the Board in obtaining the operator/discharger's compliance with State and Federal regulations during any cleanup/detoxification of a site.

III. Abandonment

For purposes of this agreement, "abandonment cases" means sites located on the BLM lands where the operator/discharger is unknown.

Prior to taking any formal enforcement action for violations of federal, state, or local requirements respecting waste discharges on abandoned sites located on the BLM lands, the Board will notify the BLM of the violation and provide the BLM with an opportunity to meet with the Board staff to explore methods of abating the violation. It is understood that this may not be possible in emergency situations. It is jointly agreed that this MOU can be canceled with 30 days notice and this agreement does not commit funds.

William Crooks
EXECUTIVE OFFICER
Central Valley RWQCB

9-30-85
Date

Van W. Manning
DISTRICT MANAGER
BLM, Ukiah District

9/6/85
Date

1/ As defined in Title 22 of the California Administrative Code, Division Chapter 30.

Memorandum of Understanding

Between

Susanville District
U.S. Bureau of Land Management

and

California Regional Water Quality
Control Board, Central Valley Region

This agreement expresses an understanding made this date between the Bureau of Land Management, Susanville District, hereinafter referred to as the BLM, and the California Regional Water Quality Control Board, Central Valley Region, hereinafter referred to as the "Board."

Whereas:

The State Water Resources Control Board and Regional Water Quality Control Boards have overall responsibility for water quality protection and, as such, must ensure that land management activities do not cause adverse impacts on beneficial water uses, and

Whereas:

The BLM is responsible for management and protection of the public land,

Therefore:

This agreement is hereby entered into between the BLM and the Board in order to improve and facilitate future coordination between these agencies, thereby ensuring that environmental degradation resulting from actions taken on the BLM lands relating to locatable minerals, solid leasable minerals, and other leasable minerals including oil and gas and geothermal activities in California is minimized.

Agreement

I. Permitting:

1) BLM approval of plans of operations, permits, leases or other use authorization on the BLM lands that involve the potential for a discharge of hazardous wastes or substances[1/] into the environment will be conditioned on the approval by the Board of waste discharge requirements for the proposed activity, when applicable prior to commencement of any discharge.

2) The Board agrees to notify the BLM of the earliest possible time of any new applications for waste discharge requirements or permits for activities located on BLM lands and to provide the BLM with the opportunity to recommend requirements necessary to ensure adequate bonding for site closure, neutralization and surface reclamation, i.e., removal and/or neutralization necessary for full cleanup.

3) BLM agrees to notify the Board of and to circulate documents prepared pursuant to the National Environmental Protection Act (NEPA) which involve the interests of the State, such as the issuance of waste discharge requirements. This action is consistent with the Memorandum of Understanding entered into between the State and BLM on November 23, 1983.

4) BLM will supply lists of mining operations that may involve the use of hazardous materials when 3809 "Notice" has been submitted for a plan of operations (operations under 5 acres), to ensure the Board is aware of all operations occurring on the BLM lands and to ensure that operators required to obtain waste discharge requirements have applied for them.

II. Compliance

1) The Board will provide the BLM with a list identifying the operator/discharger and locations of all sites on BLM lands where hazardous materials are used or stored onsite that are currently regulated under waste discharge requirements.

2) The Board will provide BLM with a list of indicators of potential waste discharge violations that BLM inspectors can use to assist in the identification of potential violations, i.e., lists of the types of indicators at a site that should be noted when performing an inspection.

3) The BLM will notify the Board of any potential violations of waste discharge requirements established by the Board on the BLM lands discovered during routine compliance checks or otherwise brought to the BLM's attention.

4) The Board will provide BLM with a summary of all compliance inspection reports issued for sites on the BLM lands and copies of those reports which document violation.

5) Upon the Board's determination that a violation exists, the Board will take appropriate action to enforce the stipulations found in waste discharge requirements with assistance from BLM.

6) BLM will assist the Board in obtaining the operator/discharger's compliance with State and Federal regulations during any cleanup/detoxification of a site.

III. Abandonment

For purposes of this agreement, "abandonment cases" means sites located on the BLM lands where the operator/discharger is unknown.

Prior to taking any formal enforcement action for violations of federal, state, or local requirements respecting waste discharges on abandoned sites located on the BLM lands, the Board will notify the BLM of the violation and provide the BLM with an opportunity to meet with the Board staff to explore methods of abating the violation. It is understood that this may not be possible in emergency situations. It is jointly agreed that this MOU can be canceled with 30 days notice and this agreement does not commit funds.

William H. Crooks — 9-30-85

William Crooks
EXECUTIVE OFFICER
Central Valley RWQCB

Date

Rex Cleary — 9/5/85

Rex Cleary
DISTRICT MANAGER
BLM, Susanville District

Date

1/ As defined in Title 22 of the California Administrative Code, Division 4, Chapter 30.

Memorandum of Understanding

Between

Bakersfield District
U.S. Bureau of Land Management

and

California Regional Water Quality
Control Board, Central Valley Region

This agreement expresses an understanding made this date between the Bureau of Land Management, Bakersfield District, hereinafter referred to as the BLM, and the California Regional Water Quality Control Board, Central Valley Region, hereinafter referred to as the "Board."

Whereas:

The State Water Resources Control Board and Regional Water Quality Control Boards have overall responsibility for water quality protection and, as such, must ensure that land management activities do not cause adverse impacts on beneficial water uses, and

Whereas:

The BLM is responsible for management and protection of the public land,

Therefore:

This agreement is hereby entered into between the BLM and the Board in order to improve and facilitate future coordination between these agencies, thereby ensuring that environmental degradation resulting from actions taken on the BLM lands relating to locatable minerals, solid leasable minerals, and other leasable minerals including oil and gas and geothermal activities in California is minimized.

Agreement

I. Permitting:

1) BLM approval of plans of operations, permits, leases or other use authorization on the BLM lands that involve the potential for a discharge of hazardous wastes or substances[1/] into the environment will be conditioned on the approval by the Board of waste discharge requirements for the proposed activity, when applicable prior to commencement of any discharge.

2) The Board agrees to notify the BLM of the earliest possible time of any new applications for waste discharge requirements or permits for activities located on BLM lands and to provide the BLM with the opportunity to recommend requirements necessary to ensure adequate bonding for site closure, neutralization and surface reclamation, i.e., removal and/or neutralization necessary for full cleanup.

3) BLM agrees to notify the Board of and to circulate documents prepared pursuant to the National Environmental Protection Act (NEPA) which involve the interests of the State, such as the issuance of waste discharge requirements. This action is consistent with the Memorandum of Understanding entered into between the State and BLM on November 23, 1983.

4) BLM will supply lists of mining operations that may involve the use of hazardous materials when 3809 "Notice" has been submitted for a plan of operations (operations under 5 acres), to ensure the Board is aware of all operations occurring on the BLM lands and to ensure that operators required to obtain waste discharge requirements have applied for them.

II. Compliance

1) The Board will provide the BLM with a list identifying the operator/discharger and locations of all sites on BLM lands where hazardous materials are used or stored onsite that are currently regulated under waste discharge requirements.

2) The Board will provide BLM with a list of indicators of potential waste discharge violations that BLM inspectors can use to assist in the identification of potential violations, i.e., lists of the types of indicators at a site that should be noted when performing an inspection.

3) The BLM will notify the Board of any potential violations of waste discharge requirements established by the Board on the BLM lands discovered during routine compliance checks or otherwise brought to the BLM's attention.

4) The Board will provide BLM with a summary of all compliance inspection reports issued for sites on the BLM lands and copies of those reports which document violation.

5) Upon the Board's determination that a violation exists, the Board will take appropriate action to enforce the stipulations found in waste discharge requirements with assistance from BLM.

6) BLM will assist the Board in obtaining the operator/discharger's compliance with State and Federal regulations during any cleanup/detoxification of a site.

III. Abandonment

For purposes of this agreement, "abandonment cases" means sites located on the BLM lands where the operator/discharger is unknown.

Prior to taking any formal enforcement action for violations of federal, state, or local requirements respecting waste discharges on abandoned sites located on the BLM lands, the Board will notify the BLM of the violation and provide the BLM with an opportunity to meet with the Board staff to explore methods of abating the violation. It is understood that this may not be possible in emergency situations. It is jointly agreed that this MOU can be canceled with 30 days notice and this agreement does not commit funds.

William H. Crooks — 9-30-85

William Crooks
EXECUTIVE OFFICER
Central Valley RWQCB

Date

Robert D. Rheiner, Jr. — 8/13/85

Robert D. Rheiner, Jr.
DISTRICT MANAGER
BLM, Bakersfield District

Date

1/ As defined in Title 22 of the California Administrative Code, Division 4, Chapter 30.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. 83-105

ADOPTION OF AN AMENDMENT TO PART I OF THE WATER QUALITY CONTROL PLANS FOR THE SACRAMENTO RIVER (5A), SACRAMENTO-SAN JOAQUIN DELTA (5B), SAN JOAQUIN-RIVER (5C), AND TULARE LAKE (5D) BASINS
FOR
LAND DISPOSAL OF STILLAGE WASTE FROM WINERIES

WHEREAS, under Section 13240 of the Porter-Cologne Water Quality Control Act and Section 303(e) of the Federal Clean Water Act amendments of 1972 (PL 92-500), the California Regional Water Quality Control Board, Central Valley Region (hereafter Board), adopted Water Quality Control Plans for Basins 5A, 5B, 5C, and 5D on 25 July 1975; and

WHEREAS, the potential exists for disposal of stillage waste by land application to adversely affect water quality and create nuisance conditions; and

WHEREAS, a study was completed for The Wine Institute by Metcalf and Eddy Engineers in February of 1980, entitled, "Land Application of Stillage Waste: Odor Control and Environmental Effects"; and

WHEREAS, the Board has developed an amendment to Part I of the Water Quality Control Plans for Basins 5A, 5B, 5C, and 5D regarding disposal of winery stillage waste by land application; and

WHEREAS, the amendment prescribes guidelines to minimize the potential for adverse water quality effects and nuisance conditions but does not preclude the establishment of more stringent requirements by local agencies or the Board for control of water quality concerns associated with land disposal of stillage waste; and

WHEREAS, the basin planning process has been certified as a "functional equivalent" to the California Environmental Quality Act requirements for preparing environmental documents and is therefore exempt from those requirements (Public Resources Code Section 21000, et seq.) in accordance with Section 15108 of the State EIR guidelines (California Administrative Code, Title 14, Division 7, Chapter 3); and

WHEREAS, on 12 August 1983, the Board conducted a public hearing after notice to all interested persons, in accordance with PL 92-500 and the California Water Code, and has considered the evidence regarding the amendment introduced at that hearing and submitted to the Board prior to the hearing: Therefore be it

RESOLVED, That the Board adopts the above described amendment to the Water Quality Control Plans for Basins 5A, 5B, 5C, and 5D, and be it further

RESOLVED, That the Executive Officer is instructed to transmit the Water Quality Control Plan amendment to the State Water Resources Control Board for its consideration and approval.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 12 August 1983.

William H. Crooks

WILLIAM H. CROOKS, Executive Officer

# AMENDMENT TO WATER QUALITY CONTROL PLAN

## Land Disposal of Stillage Waste from Wineries

### Problem Statement

A substantial number of wineries operate throughout the Central Valley. Many of these wineries operate stills. Wineries with stills produce substantial quantities of stillage waste which is high in concentrations of BOD and nitrogen. The stillage is normally discharged directly to land without any prior treatment. There is a potential for the waste to affect water quality and to create nuisance conditions.

A study has been conducted[1/] to develop recommendations for minimizing water quality effects and nuisance conditions resulting from land application of stillage waste. There is a need to implement guidelines for land disposal of stillage waste that can be used by the industry as a general indication of minimum disposal practices when accompanied with suitable soil, weather, ground water and other conditions affecting the discharge.

The guidelines address the unique problems associated with the management of the land disposal of stillage wastes. They will be utilized in the evaluation of the adequacy of technical reports submitted for the development of waste discharge requirements. Portions of the criteria contained herein may be included as part of the waste discharge requirements on a case-by-case basis depending on the site conditions.

### Guidelines for Land Disposal of Stillage Waste from Wineries

The following guidelines will be applied for the preservation and enhancement of state waters for all present and anticipated beneficial uses, prevention of water pollution, health hazards and nuisance conditions. The guidelines may not be applicable in cases where local soil, ground water, weather or other conditions are not compatible with the stillage to be disposed. These guidelines prescribe criteria for disposal of stillage waste from wineries and do not preclude the establishment of more stringent requirements by local agencies or the Board.

The Board has determined that the following guidelines should be followed by wineries which practice land disposal of stillage without any prior treatment of the waste.

### Rapid Infiltration Method

I. Disposal Site Requirements

1. The land used for disposal should be as remote from habitation as possible.

2. The soils should be capable of infiltrating 3 to 4 inches of stillage in 24 hours or less.

---

1/ "Land Application of Stillage Waste: Odor Control and Environmental Effects" prepared for The Wine Institute, by Metcalf and Eddy, Engineers, Palo Alto, California, February 1980.

3. Soil permeability should be greater than 2 inches per hour for the entire profile.

4. There should be no unripped hardpan within the top 10 feet of the soil profile.

5. Soil depth should be 10 feet or greater.

6. Depth to ground water should be 10 feet or greater.

II. Operational Procedures

1. Cooling water and any other wastewater with low COD concentrations should be separated from the stillage before land application.

2. Stillage waste should be spread on land between long, narrow, level checks. The surface should be leveled uniformly within 0.1 foot per 100 feet, without potholes.

3. At the inlet of the checks, the flow should be distributed using splash plates or other devices to prevent deep holes from forming.

4. The depth of each stillage application should not exceed the following:

| Period of Year | Depth of Stillage Application (inches) |
|---|---|
| Aug 1 to Oct 1 | 3.7 |
| Oct 1 to Dec 1 | 3 |
| Dec 1 to May 1 | 2.5 |

5. Standing stillage should not be present 24 hours after application has ceased.

6. After stillage waste has been applied to an area, the area should be allowed to dry for at least the following period before re-application of waste:

| Period of Year | Drying Time (days) |
|---|---|
| Aug 1 to Oct 1 | 6 |
| Oct 1 to Dec 1 | 9 |
| Dec 1 to May 1 | 13 |

7. After stillage has been applied to an area, if leathers have not been removed, the area should be raked or rototilled before re-application of stillage.

8. Loading rates and drying times for stillage waste from raisins or pomace should follow the criteria for December 1 to May 1 operations.

9. Land area used for disposal should equal or exceed the following:

| Period of Year | Land Area[1/] (acres per 100,000 gpd of stillage waste) |
|---|---|
| Aug 1 to Oct 1 | 7 |
| Oct 1 to Dec 1 | 12.3 |
| Dec 1 to May 1 | 20.6 |

1/ These land areas are directly related to the drying time stated in No. 6 above. Complete infiltration recovery to the original values may not be obtained by these relatively short resting cycles. At some application sites, the infiltration rate constantly decreases as the application season progresses. A decrease in infiltration of about 75% can be expected with only three applications. Therefore the number of stillage applications at a specific site should be kept to a minimum. Repeated application of stillage with minimum drying times may require larger land areas.

10. During periods when it is not used for stillage disposal, the disposal area should be planted with crops to assist in the removal of residual nitrogen concentrations from the soil if necessary.

Slow Rate Irrigation Method

Most existing stillage disposal sites are located on relatively permeable soils. Where the available land for application of stillage is such that the limiting permeability is slow to moderately slow, the use of slow rate irrigation may be used as an alternative to rapid infiltration. The application depends on the expected evaporation and infiltration and can range from less than 0.5 to 1.5 inches (13,600 to 40,000 gal/acre). Resting periods should range from 18 to 20 days or more. The resultant average loading rates and land areas are shown in Table 1. All other Disposal Site Requirements and Operation Procedures for the rapid infiltration method also apply to the slow rate irrigation method.

TABLE 1. SLOW RATE IRRIGATION
AREA REQUIREMENTS

| | Soil Permeability, Slow | Soil Permeability, Moderately Slow |
|---|---|---|
| Limiting soil permeability, in/hr | 0.06-0.2 (clay loam) | 0.2-0.6 (clay loam or silt loam) |
| Infiltration capacity, in/day | 0.5 | 1.0 |
| Resting period, days | 20 | 13 |
| Average loading rate, gal/acre/day | 670 | 1,940 |
| Area required per 100,000 gal/day of stillage, acres | 150 | 52 |

# Basin Plan Amendment and Action Plan for Erosion/Sedimentation*

## Problem Statement

Accelerated erosion from man's disturbance of soil resources (construction, agricultural operations, highway construction, etc.) contributes to turbidity and sedimentation in basin streams. For example, the US Army Corps of Engineers removes over 10 million cubic yards of sediment yearly from the Sacramento River.

There exists a tremendous push by the urban population for construction of primary residences and second-homes (with support activities) in the rural lands of the Central Valley. Exposure of soil during construction of house pads and access roads, and the subsequent earth disturbing cuts and fills can accelerate erosion many times above that which occurs in undeveloped watershed lands.

Agricultural activities can cause a long-term persistent erosion/sedimentation problem. Conversion of steeper sloping lands for agricultural production is occurring as new water sources become available and flatter land becomes more scarce. The conversion of these lands involves the removal of natural vegetation and alteration of natural drainage patterns, which can increase erosion from irrigation and rainfall runoff.

Highway construction, management of forest lands and federal grazing lands are also sources of accelerated erosion; however, these are dealt with in other 208 issues.

Sediment from erosion can have both short and long-term effects on water quality/beneficial uses. The immediate effect is increased turbidity in adjacent water ways, resulting in adverse impacts on fish and wildlife habitat, reduced water pump life due to abrasion, increased municipal/industrial water treatment costs for turbidity removal, and impaired recreation and aesthetic value. Some of the long-term effects are reduced reservoirs capacity, increased flooding hazard from reduced channel capacities, increased irrigation system maintenance and increased dredging costs. Sediment is also a carrier of other pollutants such as pesticides, heavy metals, and nutrients.

## Action Plan

The State and Regional Boards contracted with several agencies to collect existing data and make recommendations for developing a statewide policy and a regional action plan for the control of erosion/sedimentation. These studies have been completed and used as supportive studies (Attachment 1) for this Regional Board action plan.

Objective are:

1. Beneficial uses of receiving waters that are presently significantly impacted by sediment should be restored to a water quality level consistent with state and federal water quality standards.

* As adopted in Resolution No. 79-180

2. Beneficial uses of receiving waters presently unimpaired but threatened by impacts of sediment should be protected.

3. Sediment control standards and program performance evaluation criteria should be based upon Best Management Practices and understanding of the impacts of sediment on beneficial uses.

4. Local units of government should have the lead role, with the Regional Board involving and assisting them, in the assessment of sediment problems, the determination of problem areas, and the estimate of sediment control priorities within their jurisdiction.

5. Land use activities that produce significant sediment impacts upon beneficial uses should be addressed by local voluntary programs that provide for inclusion of Best Management Practices applied in the context of management plans acceptable to the affected land users..

6. Minimum county-wide erosion control and surface runoff management criteria should be enacted to address impacts of sediment produced by construction activities.

7. Regional Board participation in sediment control programs shall include assistance in the establishment of local control programs, participation in the determination of water quality problem areas and a cooperative program evaluation with local units of government. Upon failure of local programs to address impacts, waste discharge permits shall be issued for sediment control purposes.

8. In critical water quality problem areas, counties and cities in the Central Valley should submit action plans to the Regional Board within a reasonable time frame that sets forth local sediment control programs consistent with basin plan objectives and criteria. The control features of such action plans shall be incorporated into subsequent water quality management plans.

Guidelines for Existing Erosion/Sedimentation Probelms

1. The resource management subsystem approach developed by the USDA-Soil Conservation Service and reported in their "Recommended Plan for Best Management Practices" shall be considered as Best Management Practices to control or reduce erosion/sedimentation.

2. The Regional Board recognizes the sediment problem area maps developed by the USDA-Soil Conservation Service as the most comprehensive regional assessment of erosion problems for private lands presently available. These maps will be refined to assess significantly impacted water with the ehlp of SCS/RCD, county, and interested agencies.

3. Regional Board will cooperate with counties to establish county erosion control committees, composed of interest groups including those representing the public interest, and local, state, and federal agencies with resource management skills. Committee duties are:

   a. Provide local input and assistance to develop a control plan for the problem area.

   b. Define with the Regional Board, seasonal water quality and soil loss standards for their area.

   c. Seek technical assistance from agencies in planning, review, and implementation of Best Management Practices.

   d. Seek funding for implementation of Best Management Practices.

   e. Provide leadership in working with land users in the problem area.

   f. Encourage development and/or implementation of local erosion/sedimentation control ordinance.

Guidelines for Potential Erosion/Sediment Problems

A. Agriculture

Potential problems stem from conversion of one type of agricultural land use to another (i.e., range to cultivated agriculture) which result in soil disturbing activities and removal of vegetative cover.

1. Local units of government should identify areas where such conversions are likely to occur and erosion/sedimentation will have adverse impacts on water quality.

2. The county erosion control committees should work with the county to develop a control plan for identified areas.

3. Local USDA-Soil Conservation Service/RCD and UC Cooperative Extension offices should establish education and information programs to assist agricultural land users in planning and applying Best Management Practices to mitigate erosion during and after conversion.

B. Construction

1. Plans for erosion/sedimentation control should be a requirement for issuance of a county or city grading and/or building permit for construction activities that will disturb greater than 10,000 square feet of surface area and/or more than 100 cubic yards of excavated material.

2. Plans for erosion/sedimentation control should meet the following minimum criteria:

   a. During development and/or construction, adequate measures to protect against erosion/sedimentation shall be provided.

   b. Land shall be developed in increments of workable size that can be completed during a single construction season. Erosion and sediment control measures shall be coordinated with the sequence of grading, development and construction operations.

   c. Vegetation shall be removed only when absolutely necessary.

   d. Every effort shall be made to conserve top soil for reuse in revegetation of disturbed areas.

   e. All disturbed soil surfaces shall be stabilized and revegetated before the rainy season.

   In addition, plans should address the need for the following criteria:

   a. Sediment basins and traps shall be installed in conjunction with the initial grading operation.

   b. The drainage and storm water runoff control system and its component facilities shall be designed to fit the hydrology of the area under full development and have adequate capacity to transport the flow from all upstream areas.

   c. The drainage and storm water runoff control system and its component facilities shall be nonerosive in design, shall conduct runoff to a stable outlet, and be installed prior to the rainy season.

3. Those counties and cities that have adopted and are implementing ordinances and programs compatible with these guidelines shall transmit tentative maps for land develpments containing 100 lots or more with sufficient information that the proposed development will meet these guidelines or the approved county/city erosion control ordinances.

4. Construction activities in counties and cities having no erosion control programs or one which is not in compliance with the Regional Board guidelines may be required to file a report of waste discharge.

Supportive Studies

The following studies were performed to provide much of the technical and institutional information on which the recommendations of this plan are based:

1. Recommended Plan of Best Management Practices, Soil Conservation Service, 1979.

2. 208 Institutional Study, John Muir Institute, 1979.

3. Nevada County Sediment Control Plan, Nevada County RCD and Nevada County, 1979.

4. Placer County Sediment Control Plan, Placer County RCD and Placer County, 1979.

5. A Water Quality Study for Spanish Grant Drainage District and Crow Creek Watersned, G.L. Gustafson and Orestimba RCD, 1978.

6. A Gully Control Demonstration Project, Cottonwood RCD, 1979.

7. Erosion and Sediment Control Handbook, Department of Conservation Resources Agency, State of California, 1978.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. 83-135

AMENDING THE WATER QUALITY CONTROL PLAN
FOR
GUIDELINES FOR PROTECTION OF WATER QUALITY
DURING CONSTRUCTION AND OPERATION OF
SMALL HYDRO PROJECTS

WHEREAS, the California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) adopted a Water Quality Control Plan on 25 July 1975; and

WHEREAS, high energy costs and attractive economic benefits have resulted in a recent boom in the development of small hydropower projects in Central Valley watersheds; and

WHEREAS, these projects can adversely affect water quality, aquatic and riparian habitat, and recreational/aesthetic uses of streams; and

WHEREAS, guidelines have been developed which set forth Regional Board policy on small hydro development, project standards for water quality protection, and procedures for project approval; and

WHEREAS, the Regional Board has conducted an environmental assessment pursuant to Title 14, California Administrative Code, and has determined that the proposed action will not have a significant effect on the environment; and

WHEREAS, the Regional Board, on 23 September 1983 in Sacramento and on 28 October 1983 in Redding, held public hearings and considered all evidence concerning this matter: Therefore be it

RESOLVED, That the Board hereby adopts the Guidelines for Protection of Water Quality During Construction and Operation of Small Hydro Projects as an amendment to the Water Quality Control Plan; and be it further

RESOLVED, That the Executive Officer is instructed to transmit the Water Quality Control Plan amendments to the State Water Resources Control Board for its consideration and approval.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 28 October 1983.

William H. Crooks

WILLIAM H. CROOKS, Executive Officer

18/1/5

# GUIDELINES FOR PROTECTION OF WATER QUALITY DURING CONSTRUCTION AND OPERATION OF SMALL HYDRO PROJECTS

## I. POLICIES AND PRINCIPLES

All beneficial instream uses, including water quality, aquatic and riparian habitat, recreational and aesthetic uses, should be protected.

The Regional Board will be responsible for addressing water quality-related impacts of small hydro projects. Nonwater quality-related impacts will be addressed by other authorities; i.e., Department of Fish and Game; State Water Resources Control Board, Division of Water Rights; federal land management agencies; and local governments.

Construction and operation of small hydro projects shall not result in a violation of adopted water quality objectives as contained in the Board's Water Quality Control Plan. The following objectives are considered of particular importance in protecting beneficial uses from adverse impacts of small hydro projects.

### A. TEMPERATURE

Water temperature shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration does not adversely affect beneficial uses. At no time shall temperature be increased by more than 5°F above background levels. Where temperature increases would threaten fisheries or other beneficial uses, the applicant may be required to establish baseline temperature conditions.

### B. TURBIDITY

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 50 Jackson Turbidity Units (JTU), increases shall not exceed 20%.
- Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 JTU.
- Where natural turbidity is greater than 100 JTU, increases shall not exceed 10%.

The above turbidity limits will be eased during any working period when construction work must occur in flowing water, to allow a turbidity increase of 15 JTU as measured 300 feet below the discharge.

C. SEDIMENT

The suspended sediment load and concentration shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Where suspended or settleable sediment would threaten fisheries or other beneficial uses, the applicant may be required to establish baseline sediment conditions.

D. SETTLEABLE MATERIAL

Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

E. DISSOLVED OXYGEN

Dissolved oxygen shall not be depressed below levels specified in the Board's Water Quality Control Plan.

## II. PROJECT STANDARDS AND REQUIREMENTS

A. CONSTRUCTION

The project applicant shall submit to the Regional Board an Erosion Control Plan specifying those measures which will be used to prevent erosion/sedimentation problems during project construction. The plan shall include a map of the project site delineating where erosion control measures will be applied. The erosion control plan shall include the following minimum criteria.

1. Construction equipment shall not be operated in flowing water except as may be necessary to construct crossings or barriers.

2. Where working areas are adjacent to or encroach on live streams, barriers shall be constructed which are adequate to prevent the discharge of turbid water in excess of those limits specified above.

3. Material from construction work shall not be deposited where it could be eroded and carried to the stream by surface runoff or high stream flows.

4. All permanent roads shall be surfaced with material sufficient to maintain a stable road surface.

5. All disturbed soil and fill slopes shall be stabilized in an appropriate manner.

6. Surface drainage facilities shall be designed to transport runoff in a nonerosive manner.

7. Riparian vegetation shall be removed only when absolutely necessary.

8. There shall be no discharge of petroleum products, cement washings or other construction materials.

9. Erosion control measures shall be in place by October 15 of each year.

10. Stream diversion structures should be designed to preclude accumulation of sediment. If this is not feasible, the applicant must develop an operation plan that will prevent adverse downstream effects from sediment discharges.

11. The project shall be designed to avoid erosion and degradation of water quality in the event of a failure in the water transport system. An automatic, immediate shutoff mechanism is an acceptable method (in many cases, the only feasible method).

## III. PROJECT REVIEW AND REGULATION

A. Applicants should seek early consultation with the Regional Board to determine water quality concerns and to arrange a site inspection if needed.

B. Where appropriate, the Regional Board will participate with the applicant and other reviewing agencies to determine the scope of the project's environmental assessment.

C. The Regional Board will review the FERC application which should include the following water quality-related information:

1. All environmental assessment information.

2. A copy of the Erosion Control Plan.

3. A description of all project mitigations for water quality protection.

D. The Regional Board will issue a letter addressing the need for Water Quality Certification and waste discharge requirements.

Waste Discharge Requirements

1. The Regional Board believes the standard specifications contained in Section II of these guidelines will provide water quality protection from small hydro construction and operation. In most instances, the Regional Board will waive the need for Reports of Waste Discharge and waste discharge requirements for projects which comply with these standard specifications.

2. Waste discharge requirements may be required for projects having high potential for water quality impairment or for major projects where construction work will be continued beyond one year.

Water Quality Certification

1. Regulations under Section 401 of the Clean Water Act require applicants for federal licenses or permits (such as FERC licenses or U.S. Corps Dredge and Fill Permits) to obtain state certification of conformance with water quality standards.

2. In most instances, the Regional Board will waive water quality certification provided the project includes the standards specified in Section II of these guidelines and it is determined that project operation will not violate adopted water quality objectives.

## IV. ENFORCEMENT

When investigations by staff reveal that a project is impairing, or threatens to impair, beneficial uses of water, the project owner/operator is required to take corrective action as follows:

A. The responsible party shall be promptly notified and asked to submit a description of actions and a time schedule to be taken to bring the project into compliance with these guidelines.

B. A Cleanup and Abatement Order may be issued where the discharge of waste to surface waters is imminent and normal administrative procedures will not afford timely water quality protection. Upon failure to comply with such Cleanup and Abatement Order, the matter shall be referred to the Attorney General for appropriate action.

C. The Regional Board may expend available monies to perform any cleanup and abatement work which, in its judgment, is required to prevent substantial adverse impacts on water quality and beneficial uses. The discharger shall be liable for all costs incurred in taking the cleanup and abatement action.

# Guidelines for Waste Disposal from Land Developments

In its June 1971 Interim Water Quality Control Plan the Board included Guidelines for Land Development Planning. These Guidelines were substantially modified on 15 December 1972 and retitled Guidelines for Waste Disposal From Land Developments. The Guidelines that follow are substantially the same as those adopted in 1972 but contain changes based upon experience gained from working closely with local governmental agencies in the development of individual waste disposal ordinances.

Section 13260 of the Porter-Cologne Water Quality Control Act requires any person discharging waste or proposing to discharge waste to file a report of the discharge containing such information as may be required by the Board. In the early 1950's, the Board waived the filing of reports for discharges from individual sewage disposal systems in those counties having satisfactory ordinances or regulations. Traditionally, these individual discharges have been treated by septic tank - leaching systems.

The Water Quality Control Act requires local governmental agencies to notify the Board of the filing of tentative subdivision maps or applications for building permits involving six or more family units except where the waste is discharged to a community sewer system.

The Board believes that control of individual waste treatment and disposal systems can best be accomplished by local county environmental health departments if these departments are strictly enforcing an ordinance that is designed to provide complete protection to ground and surface waters and to the public health.

The following principles and policies will be applied by the Board in review of water quality factors related to land developments and waste disposal from septic tank-leaching systems:

- There are great differences in the geology, hydrology, geography, and meteorology of the 40 counties which lie partially or wholly within the Central Valley. The criteria contained herein are considered to be applicable to the Central Valley and pertain to: (a) all tentative maps filed after 15 December 1972, (b) all divisions of land made after 15 December 1972, and (c) all final maps for which tentative maps were filed prior to 15 December 1971. Local agencies and the Board may adopt and enforce more stringent regulations which recognize particular local conditions that may be limiting to wastewater treatment and disposal.

- The Board does not intend to preempt local authority and will support local authority to the fullest extent possible. Where local authority demonstrates the inability or unwillingness to adopt an ordinance compatible with these guidelines, the Board intends to withdraw its waiver concerning waste disposal from individual systems and will require each and every party proposing to discharge waste within that county to submit a report of waste discharge as required by Section 13260 of the Porter-Cologne Water Quality Act.

- Evaluation of the cpability of individual waste treatment systems to achieve continuous safe disposal of wastes requires detailed local knowledge of the area involved. The experience and recommendations of local agencies will, therefore, be an important input to the information upon which the Board will base its decision.

- There are many areas within the Central Valley that are not conducive to individual waste treatment and disposal systems. In these areas, connection to an adequate community sewerage system is the most satisfactory method of disposing of sewage. The Board believes that individual disposal systems should not be used where community systems are available and that every effort should be made to secure public sewer extensions, particularly in urban areas. Where connection to a public sewer is not feasible and a number of residences are to be served, due consideration should be given to construction of a community sewage treatment and disposal system.

- The installation of individual disposal systems, especially in large numbers, creates discrete discharges which must be considered on an individual basis. The life of such disposal systems may be quite limited. Failures, once they begin in an area, generally will occur on an areawide basis. Further, regular maintenance is important to successful operation of individual disposal systems. To assure continued protection of water quality, to prevent water pollution and to avoid the creation of public health hazards and nuisance conditions, a public entity* shall be formed with powers and responsibilities defined herein for all subdivisions having 100 lots or more. Subdivisions with less than 100 lots which threaten to cause water quality or public health problems will also be required to form a public entity.

Criteria for Septic Tank - Leaching Systems

The following criteria will be applied to assure continued preservation and enhancement of state waters for all present and anticipated beneficial uses, prevention of water pollution, health hazards, and nuisance conditions. These

---

* Public Entity - A local agency, as defined in the State of California Government Code Section 53090 et seq., which is empowered to plan, design, finance, construct, operate, maintain, and to abandon, if necessary, any sewerage system or the expansion of any sewerage system and sewage treatment facilities serving a land development. In addition, the entity shall be empowered to provide permits and to have supervision over the location, design, construction, operation, maintenance, and abandonment of individual sewage disposal systems within a land development, and shall be empowered to design, finance, construct, opeate, and maintain any facilities necessary for the disposal of wastes pumped from individual sewage disposal systems and to conduct any monitoring or surveillance programs required for water quality control purposes. (Unless there is an existing public entity performing these tasks.)

criteria prescribe conditions for waste disposal from septic tank-leaching systems for single family residential units or the equivalent and do not preclude the establishment of more stringent criteria by local agencies or the Board. The Board may prohibit the discharge from septic tank-leaching systems which do not conform to these criteria. Systems which cannot meet the following criteria may be allowed in selected areas if they are individually designed. The criteria may not be applicable in all cases to commercial or industrial developments.

The septic tank, absorption systems, and disposal area requirements for other than single family residential units shall be based upon the current edition of the "Manual of Septic Tank Practice" or in accordance with methods approved by the Executive Officer. An adequate replacement area equivalent to at least the initial disposal area shall be required at the time of design of the initial installation and incompatible uses of the replacement area shall be prohibited.

Minimum Distances

The Board has determined the following minimum distances (in feet) should be followed in order to provide protection to water quality and/or public health:

| Facility | Domestic Well | Public Well | Flowing Stream(1) | Drainage Course of Ephemeral Stream(2) | Cut or Fill Bank(3) | Property Line(4) | Lake or Reservoir(5) |
|---|---|---|---|---|---|---|---|
| Septic Tank or Sewer Line | 50 | 100 | 50 | 25 | 10 | 25 | 50 |
| Leaching Field | 100 | 100 | 100 | 50 | 4h | 50 | 200 |
| Seepage Pit | 150 | 150 | 150 | 50 | 4h | 75 | 200 |

(1) As measured from the line which defines the limit of a 10-year frequency flood.

(2) As measured from the edge of the drainage course or stream.

(3) Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measured from the top edge of the bank.

(4) This distance shall be maintained when individual wells are to be installed and the minimum distance between waste disposal and wells cannot be assured.

(5) As measured from the high water line.

Minimum Criteria

- The percolation rate* in the disposal area shall not be slower than 60 minutes per inch, or not slower than 30 minutes per inch if seepage pits are proposed. The percolation rate shall not be faster than five minutes per inch unless it can be shown that a sufficient distance of soil is available to assure proper filtration.
- Soil depth below the bottom of a leaching trench shall not be less than five feet, nor less than 10 feet below bottom of a seepage pit.
- Depth to anticipated highest level of ground water below the bottom of a leaching trench shall not be less than five feet, nor less than 10 feet below bottom of seepage pit. Greater depths are required if soils do not provide adequate filtration.
- Ground slope in the diposal area shall not be greater than 30 percent.
- The minimum disposal area shall conform to the following:

| Percolation Rate (minutes/inch) | Minimum Usable Disposal Area (sq ft) |
|---|---|
| 41-60 | 12,000 |
| 21-40 | 10,000 |
| 11-20 | 8,000 |
| Less than 10 | 6,000 |

- Areas that are within the minimum distances which are necessary to provide protection to water quality and/or public health shall not be used for waste disposal. The following areas are also considered unsuitable for the location of disposal systems or replacement area:
  - Areas within any easement which is dedicated for surface or subsurface improvement.
  - Paved areas.
  - Areas not owned or controlled by property owners unless said area is dedicated for waste disposal purposes.
  - Areas occupied or to be occupied by structures.

* Determined in accordance with procedures contained in current US Department of Health, Education, and Welfare "Manual of Septic Tank Practice" or a method approved by the Executive Officer.

Implementation

- The Board will review local ordinances for the control of individual waste disposal systems and will request local agencies to adopt criteria which are compatible with or more stringent than these guidelines.

- In those counties which have adopted an ordinance compatible with these guidelines, the Board will pursue the following course of action for discharges from individual septic tank-leaching systems.

  - Land developments consisting of less than 100 lots will be processed entirely by the county. Tentative maps for subdivisions involving six or more family units shall be transmitted to the Board along with sufficient information* to clearly determine that the proposed development will meet the approved county ordinance. The Board or the appropriate local authority may require a public entity if potential water quality or public health problems are anticipated.

  - Tentative maps for land developments containing 100 lots or more shall be transmitted to the Board. The map shall be accompanied by a report of waste discharge and sufficient information to clearly demonstrate that the proposed development will meet these guidelines or the approved county ordinance. A public entity is required prior to any discharge of waste.

- The Board will prohibit the discharge of wastes from land developments which threaten to cause water pollution, quality degradation, or the creation of health hazards or nuisance conditions. These guidelines will be used to evaluate potential water quality or health problems. In certain locations and under special circumstances the Board's Executive Officer may waive individual criteria or he may waive the formation of a public entity. Land developers are to be aware that a waiver by the Executive Officer is not binding on any location entity.

  Examples of these special circumstances would be:

  - Short time, interim use of individual septic tank-leaching systems may be acceptable in areas which do not meet these guidelines if sufficient, dependable funding of community collection, treatment, and disposal is demonstrated and a plan and time schedule for implementation is being followed.

---

* The Board's staff has developed a document entitled "Information Needs for Waste Disposal from Land Developments". This document discusses the necessary reports, maps, etc., that must be submitted in order to evalute proposed land developments.

- A failure to meet the minimum criteria could be negated by other favorable conditions. for example, the installation of individual septic tank-leaching systems may be allowed in areas which cannot meet the minimum criteria in these guidelines if the disposal area is increased sufficiently to allow for special design systems* that have been shown to be effective in similar areas.

- Severe impact on water quality has resulted from improper storm drainage and erosion control. Land developers must provide plans for the control of such runoff from initial construction up to complete build-out of the development.

- The disposal of solid waste can have an impact on water quality and public health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.

- The disposal of septic tank sludge is an important part of any areawide master plan for waste disposal. Land developers must submit a plan which con- forms to the regional or county master plan and contains adequate provisions for septic tank sludge disposal for complete build-out of the development.

- The responsibility for the timely submittal of information necessary for the Board or the appropriate local authority to determine compliance with these guidelines rests with persons submitting proposals for development or discharge. For those developments which are to be submitted to the Board, the Porter-Cologne Water Quality Control Act provides that no person shall initiate any new discharges of wastes prior to filing a report of waste discharge and prior to (1) issuance of waste discharge requirements, (2) the expiration of 120 days after submittal of an adequate report of waste discharge, or (3) the issuance of a waiver by the Regional Board.

- A report of waste discharge which does not provide the information required by these guidelines is an inadequate report. The 120-day time period does not begin until an adequate report has been submitted. Thus, to avoid extensive delay, every effort should be made to comply with these guidelines at the earliest possible date during formulation of proposals.

---

* Special design systems will be accepted for review from registered engineers, geologists, or sanitarians who are knowledgeable and experienced in the field of septic tank-leaching system design and installation. These systems will include at least a 100 percent replacement disposal area. these systems shall be installed under the supervision of the designer, the public entity responsible, and the local health department.

# Amendment to Water Quality Control Plan and Action Plan for Mining*

## Problem Statement

Although water quality problems from active mines are effectively controlled through traditional avenues of waste discharge requirements, permits, and enforcement, acid mine drainage and heavy metals from inactive mines have created sterile stream conditions in isolated locations throughout central and northern California. Most of those mines known to be causing water quality problems are in the Central Valley Region.

## Action Plan and Development

In planning to correct water quality problems caused by past mining activity, the Board undertook several related studies, the summaries and general recommendations of which are given below.

Tables 1 and 2 show, respectively, an inventory and ranking of problem mines in the Central Valley Region. A report was prepared describing the method used to rank the mines.

A study of enforcement and funding options was also completed.

Technical feasibility studies were conducted or are underway. These site-specific studies at Walker Mine in Plumas County; Malakoff Diggins in Nevada County; and Leviathan Mine in Alpine County will be used to promote cleanup at those sites and serve as examples of the application of BMPs for tunnel, open pit spoils, and sediment problems, respectively, with transfer value to other mines. The abatement project a Penn Mine, Calaveras County, begun as a 208 project, will also aid in identifying controls and techniques for other mines. A summary of acid mine drainage control technology has been prepared. Control methods (BMPs) that appear most promising for application in California are suggested in Figure 1. A Memorandum of Understanding among the State Water Resources Control Board, the US Bureau of Reclamation, and the Department of Fish and Game was prepared which outlines a program of correction for the Spring Creek watershed, Iron Mountain Mine, Shasta County.

The Board will take the following approach in applying the results of the studies described above:

1. The Board finds there are serious water quality problems related to inactive mines and will take necessary actions to control those problems using the priorities shown in Table 2 as a guide.

2. In implementing necessary controls, the Board will take appropriate actions identified in the legal, institutional, and funding studies conducted during the 208 planning program.

* As adopted in Resolution No. 79-149

3. As an important initial step in implementation and enforcement, feasibility studies should be developed for all high priority problem mines. Owners and operators will be required to prepared such plans, or in some cases, as appropriate, the Board will seek funds from the identified sources to conduct the studies. BMPs shown in Figure 1 should be considered in developing those plans.

4. The State Board and EPA should assist the Region in pursuing promising funding sources and other appropriate measures as recommended in the legal, institutional, and funding studies.

5. To prevent future problems, the Board will require owners and operators of active mines to prepare plans for closure and reclamation. Closure and reclamation plans for all operations will meet the minimum requirements of regulations in the Surface Minign and Reclamation Act of 1975 and will be coordinated with the State Board of Mining and Geology.

## Public Participation

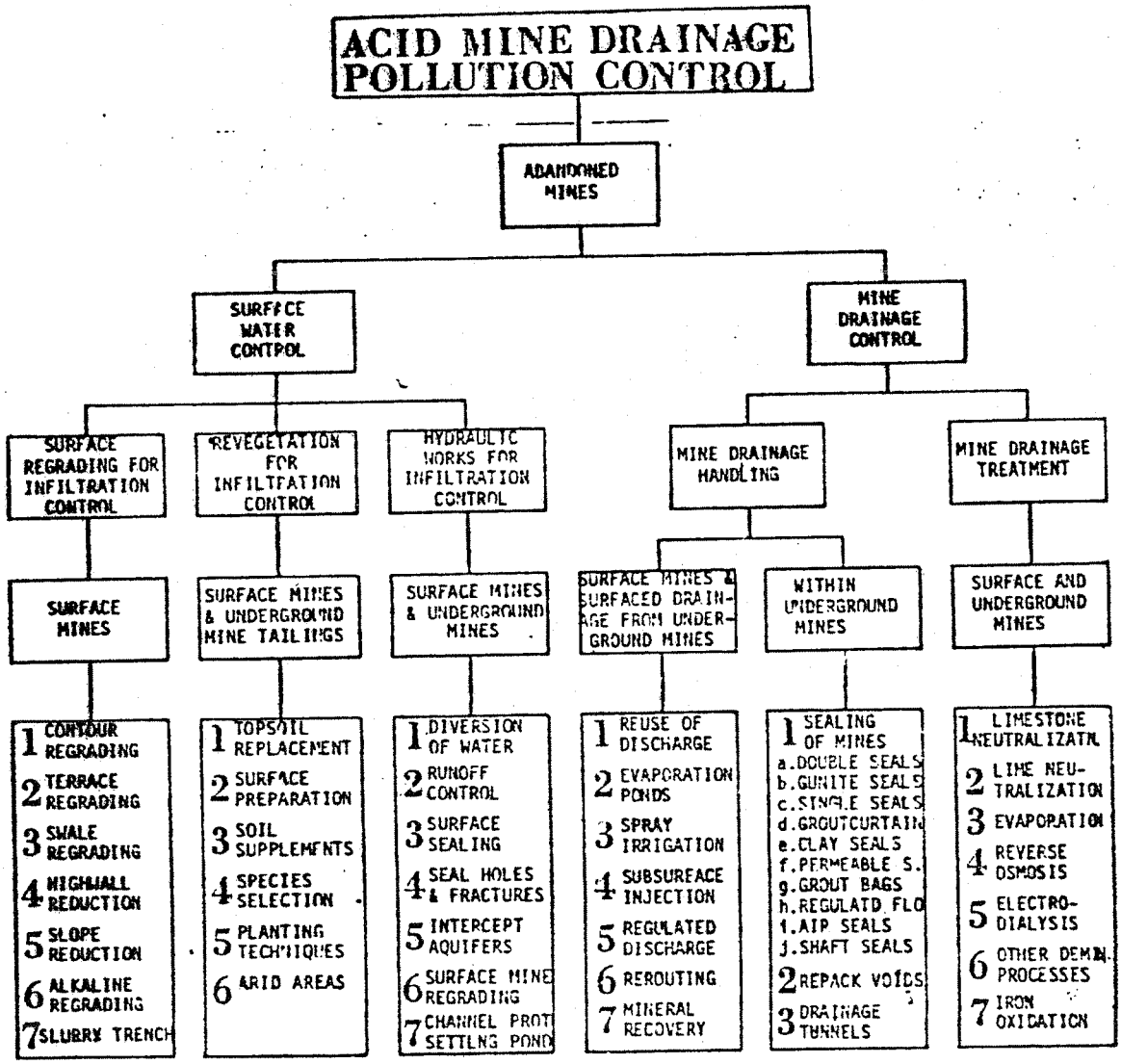
Work plans and products were reviewed by a Mining Technical Advisory Group (MTAG) and individuals and groups on the Regional and State Board agenda lists. A Penn Mine subcommittee toured the mine site and reviewed proposed abatement plans. One meeting with the MTAG was held to review the draft inventory and assessment report, discuss the legal study, and evaluate staff proposals for the site-specific feasibility studies.

## Negative Declaration

A Negative Declaration was prepared for this project.

FIGURE 1

BEST MANAGEMENT PRACTICES AVAILABLE FOR
CONTROL OF AMD FROM ABANDONED MINES




adapted from unpublished literature review by the Sanitary Engineering Research Lab, U.C. Berkeley

TABLE 1. INVENTORY OF PROBLEM MINES

| Watershed | Mine Name | County | CDMG Map No. | USGS Map | Latitude | Longitude | Commodity Mined | Type of Operation | Receiving Stream |
|---|---|---|---|---|---|---|---|---|---|
| American River, SF | Alhambra Shumway | El Dorado | 5A-733 | Georgetown | 38 49.54' | 120 47.37' | Gold | Undergrnd | Mosquito Trail Glch—Rock Crk—SF American R |
| Bear River | Dairy Farm | Placer | 5A-633 | Cmp Far W | 39 1.81' | 121 17.25' | Copper | Undergrnd | Camp Far West Reservoir |
| | Lava Cap-Banner | Nevada | 5A-571 | Chicago Pk | 39 13.64' | 120 58.19' | Gold | Undergrnd | L.Clipper Crk—Greenhorn Crk—Rollins Res—Bear R |
| Butte Creek | Cherokee | Butte | 5A-278 | Cherokee | 39 38.20' | 121 37.70' | Gold | Hyd Placr | Sawmill Ravine—Dry Creek—Butte Crk |
| | Mineral Slide | Butte | (none) | Paradise | 39 47.14' | 121 37.63' | Gold | Undergrnd | L.Butte Crk—Butte Crk |
| Cache Creek | Abbott | Lake | 5A-645 | Wilbur Spg | 39 1.23' | 122 26.63' | Mercury | Undergrnd | Harley Glch—Cache Crk |
| | Manzanita | Colusa | 5A-644 | Wilbur Spg | 39 2.30' | 122 25.82' | Mercury | Undergrnd | Sulfur Crk—bear Crk—Cache Crk |
| | Reid | Yolo | 5A-656 | Knoxville | 38 51.88' | 122 22.20' | Mercury | Undergrnd | Davis Crk—Cache Crk |
| | Sulfur Bank | Lake | 5A-650 | Clr Lk Hi | 38 59.90' | 122 40.35' | Merc,Sul | Open Pit | Clear Lake—Cache Crk |
| Cosumnes River | Copper Hill | Amador | 5B-044 | Latrobe | 38 30.13' | 120 58.00' | Copper | Undergrnd | Cosumnes River |
| Feather River | China Gulch | Plumas | (none) | Greenvlle | 40 12.74' | 120 45.17' | Copper | Undergrnd | Lights Crk—Wolf Crk—NF Feather R |
| | Engel | Plumas | 5A-076A | Greenvlle | 40 12.20' | 120 46.41' | Cop,Silv | Undergrnd | Lights Crk—Wolf Crk—NF Feather R |
| | Iron Dyke | Plumas | 5A-080 | Greenvlle | 40 3.90' | 120 50.60' | Cu,Ag,Au | Undergrnd | Taylor Crk—Indian Crk—Wolf Crk—NF Feather R |
| | Walker | Plumas | 5A-159 | Mt Inglls | 39 58.70' | 120 39.80' | Copper | Undergrnd | L.Grizzly Crk—Indian Crk—Wolf Crk—NF Feather R |
| Fresno Slough | New Idria | San Benito | 5D-045 | Idria | 36 24.85' | 120 40.39' | Mercury | OPit&Undg | San Carlos Crk—Silver Crk—Panoche Crk |
| Mokelumne River | Argonaut | Amador | 5B-105 | Jackson | 38 21.77' | 120 47.10' | Gold | Undergrnd | Jackson Crk—Dry Crk—Mokelumne R |
| | Newton | Amador | 5B-089 | Ione | 38 20.45' | 120 53.20' | Copper | Undergrnd | Copper Crk—Sutter Crk—Dry Crk—Mokelumne R |
| | Penn | Calaveras | 5B-223 | Vlly Spg | 38 13.97' | 120 52.50' | Copper | OPit&Undg | Mokelumne River (Camanche Res) |
| Putah Creek | Aetna | Napa | 5A-785 | Aetna Spg | 38 39.43' | 122 29.51' | Mercury | Surf&Undg | Swartz Crk—Pope Crk—Putah Crk—Lake Berryessa |
| | Anderson | Lake | 5A-652 | Whisp Pne | 38 46.35' | 122 42.40' | Mercury | Undergrnd | Anderson Crk—Bear Canyon Crk—Putah Crk—Lk. Ber |
| | Big Injun | Lake | 5A-650A | Whisp Pne | 38 45.85' | 122 42.40' | Mercury | Surf&OPit | Bear Canyon Crk—Putah Crk—Lake Berryessa |
| | Corona | Napa | 5A-790 | Detert Spg | 38 40.21' | 122 32.47' | Mercury | Undergrnd | James Crk—Pope Crk—Putah Crk—Lake Berryessa |
| | Great Western | Lake | 5A-795 | Mt St Hel | 38 42.87' | 122 38.44' | Mercury | OPit&Undg | Hoodoo Crk—Dry Crk—Putah Crk—Lake Berryessa |
| | Knoxville | Napa | 5A-659 | Knoxville | 38 49.61' | 122 20.34' | Mercury | OPit&Undg | Knoxville Crk—Eticuera Crk—Lake Berryessa |
| | Oat Hill | Napa | 5A-789 | Detert Spg | 38 40.50' | 122 21.65' | Mercury | Surface | James Crk—Pope Crk—Putah Crk—Lake Berryessa |
| Sacramento River | Afterthought | Shasta | 5A-019 | Millville | 40 44.10' | 122 4.10' | Cu,Ag,Au | Undergrnd | L.Cow Crk—Sacramento R |
| | Balaklala | Shasta | 5A-033 | Shasta Dam | 40 43.59' | 122 29.79' | Cu,Zn,Ag | Undergrnd | West Squaw Crk—Shasta Lake |
| | Bully Hill | Shasta | 5A-017 | Bllbkka Mt | 40 47.80' | 122 12.20' | Cu,Zn,Pb | Undg&Surf | First Crk, Town Crk—Shasta Lake |
| | Golinsky | Shasta | 5A-014 | Lamoine | 40 45.84' | 122 27.40' | Cu,Zn,Au | Undergrnd | L.Backbone Crk—Shasta Lake |
| | Greenhorn | Shasta | 5A-055 | Frnch Glch | 40 39.75' | 122 41.65' | Cu,Au,Ag | Undergrnd | Willow Crk—Clear Crk—Whiskeytown Lake |
| | Iron Mountain | Shasta | 5A-041 | Frnch Glch | 40 40.39' | 122 31.47' | Cu,Zn,Au | Undg&Surf | Spring Crk—Keswick Res (Sacramento R ) |
| | Keystone | Shasta | 5A-037 | Frnch Glch | 40 43.10' | 122 30.32' | Cu,Au,Ag | Undergrnd | West Squaw Crk—Shasta Lake |
| | Mammoth | Shasta | 5A-013 | Lamoine | 40 45.84' | 122 27.40' | Cu,Zn,Au | Undergrnd | L.Backbone Crk—Shasta Lake |
| | Shasta King | Shasta | 5A-035 | Shasta Dam | 40 43.80' | 122 29.80' | Cu,Au,Ag | Undergrnd | West Squaw Crk—Shasta Lake |
| San Joaquin Delta | Mount Diablo | Contra Costa | (none) | Antioch So | 37 53.87' | 121 52.54' | Mercury | Undergrnd | Marsh Crk—Marsh Crk Res—San Joaquin Delta |
| Stanislaus River | Empire | Calaveras | 5C-072 | Copperopls | 37 58.60' | 120 38.30' | Copper | OPit&Undg | Copper Crk—Black Crk—Tulloch Res (Stanislaus R) |
| | Keystone | Calaveras | 5C-073 | Copperopls | 37 59.20' | 120 38.90' | Copper | Undergrnd | Penny Crk—Sawmill Crk—Black Crk—Tulloch Res |
| Yuba River | Kenton | Sierra | 5A-357 | Alleghany | 39 27.31' | 120 51.52' | Gold | Undergrnd | Kanaka Crk—M Yuba R |
| | Malakoff Diggings | Nevada | 5A-345 | Pike,NBlmf | 39 22.20' | 120 55.00' | Gold | Surf Hydr | Humbug Crk—SF Yuba R |
| | Plumbago | Sierra | 5A-384 | Alleghany | 39 27.17' | 120 48.74' | Gold | Undergrnd | Buckeye Ravine—M Yuba R |
| | Sixteen to One | Sierra | 5A-367 | Alleghany | 39 27.92' | 120 50.53' | Gold | Undergrnd | Kanaka Crk—M Yuba R |

TABLE 2 MINE RANKING

| Mine Name | Rank | Slemmcb | | Pollution Problem | Data Source |
|---|---|---|---|---|---|
| | | C | Q | | |
| Iron Mountain | H | 30 | 5-70 | acid,Cu,Zn,Fe from tailings and adits to creeks | USGS WRI78-32, CDFG, CIMG reports, and CVRWQCB inspections |
| Mammoth | H | 30 | 3 | acid,Cu,Zn,Fe from adits to creek | USGS WRI78-32 |
| Penn | H | 26 | 680 | acid,Cu,Zn,Fe from tailings and shafts to river | CDFG and CVRWQCB reports and inspections |
| Balaklala | H | 26 | 5 | acid,Cd,Cu,Zn from adits and dump to creek | USGS WRI78-32 and DWR report |
| Keystone | H | 26 | 5 | acid,Cd,Cu,Zn from adits and dump to creek | USGS WRI78-32 and DWR report |
| Afterthought | H | 24 | 68 | acid,Cd,Cu,Zn from main portal to creek | CDFG report |
| Mount Diablo | H | 23 | .6-1 | acid,Hg,Fe from tailings and overburden to creek | CVRWQCB and DWR inspections and reports |
| Bully Hill | H | 21 | 1.8 | acid,Cd,Cu,Zn from mine to creek | USGS WRI78-32 |
| Walker | H | 17 | 11 | Cu,Zn from tailings and portal to creek | CVRWQCB, CONOCO, and AMAX inspections and sampling |
| Sulfur Bank | H | 15 | 5 | Hg from open pit to lake | USGS and DWR reports |
| Newton | M | 30 | .3 | acid,Cu,Fe from tailings to creek | CVRWQCB inspections |
| Greenhorn | M | 19 | .6-5 | Cu,Zn,Fe from tailings to creek | CDFG inspection |
| New Idria | M | 19 | .6-5 | Hg,Fe from mine to creek | CVRWQCB inspection |
| Corona | M | 17 | 1.2 | acid,Hg,Fe from adits to creek | CVRWQCB inspections |
| Manzanita | M | 15 | 3.5 | Hg from mine area to creek | CVRWQCB inspection |
| Cherokee | M | 15 | .6-5 | Hg from mine area to creek | CVRWQCB inspection |
| Copper Hill | M | 5 | 474 | Cu,Zn from mine area to river | STORET and USGS-DWR data |
| Empire | L | 20 | .3 | Cu from tailings to creek | CVRWQCB inspection |
| Abbott | L | 15 | .1 | Hg from tailings to creek | CVRWQCB inspections |
| Knoxville | L | 10 | 2 | Hg from mine area to creek | CVRWQCB inspection |
| Keystone | L | 4 | 2 | none observed but Cu suspected, perhaps Fe | CVRWQCB inspection |
| Lava Cap-Banner | L | 3 | 1.3 | none detected in creek but As,Ag,Hg are possible | CVRWQCB inspection |
| Great Western | L | 3 | 1 | none detected but Hg suspected | CVRWQCB inspection |
| Alhambra Shumway | L | 2 | 1 | none detected and sedimentation suspected | CVRWQCB inspection |
| Anderson | L | 0 | 13 | none detected but Hg suspected | CVRWQCB inspection |
| Big Injun | L | 0 | 8 | none detected but Hg suspected | CVRWQCB inspection |
| Kenton | L | 0 | 5 | none detected but As possible | STORET data and CVRWQCB inspections of creek |
| 16 to 1 | L | 0 | 5 | none detected but As possible | STORET data and CVRWQCB inspections of creek |
| Engel | L | 0 | 3 | none detected but Cu suspected | STORET data |
| China Gulch | L | 0 | 3 | none detected but Cu suspected | STORET data |
| Oat Hill | L | 0 | 3 | none detected in creek but mine runoff high in Hg,Fe | CVRWQCB inspections |
| Aetna | L | 0 | .5 | none detected but Hg suspected | CVRWQCB inspection |
| Shasta King | L | 0 | .1 | none detected in creek but mine water high in acid,Cu | USGS WRI78-32 and DWR report |
| Golinsky | L | 0 | 0 | none observed (no flow from mine) but Cu,Zn are possible | USGS WRI78-32 |
| Iron Dyke | L | 0 | 0 | none observed (no flow from mine) but Cu is possible | CVRWQCB inspections |
| Argonaut | L | 0 | 0 | none observed (no flow from mine) but acid is possible | CVRWQCB inspection |
| Dairy Farm | L | 0 | 0 | none observed but acid,Cu are possible | CVRWQCB communication with S. Sutter Water District |
| Plumbago | U N K N O W N | | | no inspection due to remote location, As suspected | |
| Reid | U N K N O W N | | | no inspection due to inaccessibility, acid,Hg suspected | |
| Malakoff Diggings | S P E C I A L | | | high sediment and turbidity from mine area to creek | CVRWQCB inspection |
| Mineral Slide | S P E C I A L | | | sediment and turbidity from mine area to creek | CVRWQCB observation |

## WATER QUALITY LIMITED SEGMENTS
## (Basins 5A, 5B, and 5C)

| NAME OF SEGMENT | WASTE | BENEFICIAL USE IMPAIRMENT(S) | APPROXIMATE EXTENT |
|---|---|---|---|
| W. Squaw Cr. | Acid mine drainage | COLD; Reduced aquatic life | 2 mi. |
| Lt. Backbone Cr. | Acid mine drainage | COLD; Reduced aquatic life | 1 mi. |
| Town Cr. | Acid mine drainage | COLD; Reduced aquatic life | 1/2 mi. |
| Horse Cr. | Acid mine drainage | COLD; Reduced aquatic life | 1/2 mi. |
| Spring Cr. | Acid mine drainage | COLD; Reduced aquatic life | 3 mi. |
| Keswick Res. | Acid mine drainage | COLD; Reduced aquatic life | 5 mi. |
| Upper Sacramento River | Acid mine drainage temperature & turbidity | COLD; Reduced aquatic life | 30 mi. (Keswick Dam to Red Bluff) |
| Little Cow Cr. | Heavy metals | COLD; Reduced aquatic life; exceeds water quality objective | 2 mi. |
| Little Grizzly Cr. | Acid mine Drainage | COLD; Reduced aquatic life; existing WQ limited segment | 10 mi. (from Dolly Creek confluence to N. Fork Feather R.) |
| Clear Lake | Hg | REC 1; REC 2; DHS Health Advisory in effect | All |
| Lake Berryessa | Hg | REC 1; DHS Health Advisory in effect | All |
| James Cr. | Acid mine drainage | REC 1; WARM; COLD; Reduced aquatic life | 6 mi |
| Sulphur Cr. | Hg | REC 1; WARM; MUN; Exceeds drinking water standard | 5 mi. |
| Davis Cr. Res. | Hg | REC 2; Fish tissues exceed FDA levels | All |
| Lower Sacramento River | Ordram, Bolero | MUN; WARM; COLD; Exceeds water quality objective for pesticides | 30 mi. (I St. Bridge to Chipps Island |
| Delta R. | Hg | REC 1; DHS Health Advisory in effect | All |
| Mokelumne R. | pH, heavy metals | REC 1; REC 2; COLD; WARM; WILD; Reduced aquatic life; Existing WQ limited segment | 20 mi. (Penn Mine to State Hwy. 99) |
| San Joaquin R. | Salt, DO | Existing WQ limited segment | 35mi.(Confluence with Old River confluence with Calaveras R.) |
| Marsh Cr. Res. | Hg | REC 1, 2; Closed to public access | All |
| Marsh Cr. | Hg | REC 1,2; Reduced aquatic life; exceeds drinking water standard | 10 mi. |

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
NEW MELONES UNIT
CENTRAL VALLEY PROJECT, CALIFORNIA

MEMORANDUM OF AGREEMENT FOR THE PROTECTION AND ENHANCEMENT OF THE WATER QUALITY OF THE STANISLAUS AND SAN JOAQUIN RIVERS AS AFFECTED BY THE NEW MELONES PROJECT UNDER WATER RIGHT APPLICATION 19304 OF THE UNITED STATES OF AMERICA AND BY MUNICIPAL AND INDUSTRIAL WASTES

WHEREAS, THE UNITED STATES INTENDS TO CONSTRUCT A DAM AND RESERVOIR IN AND ACROSS THE STANISLAUS RIVER AT A POINT UPSTREAM FROM OAKDALE, STANISLAUS COUNTY, CALIFORNIA, AND WILL UTILIZE SAID DAM AND RESERVOIR AND THEIR RELATED WORKS FOR THE DIVERSION AND STORAGE OF WATER OF THE STANISLAUS RIVER PRIMARILY FOR FLOOD CONTROL, DOMESTIC, IRRIGATION, RECREATION, MUNICIPAL AND INDUSTRIAL, FISH CULTURE, AND WATER QUALITY CONTROL PURPOSES AND FOR THE GENERATION OF HYDROELECTRIC ENERGY; SAID DAM TO BE KNOWN AS NEW MELONES DAM AND THE RESERVOIR CREATED THEREBY TO BE KNOWN AS NEW MELONES RESERVOIR; AND

WHEREAS, THE UNITED STATES HAS FILED AN APPLICATION AND IS SEEKING TO OBTAIN A PERMIT AND LICENSE TO APPROPRIATE AND APPLY TO BENEFICIAL USE WATERS OF THE STANISLAUS RIVER AND ITS TRIBUTARIES IN CONNECTION WITH THE OPERATION OF THE NEW MELONES DAM AND RESERVOIR, SUCH APPLICATION BEING DESIGNATED IN THE FILES OF THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD AS NUMBER 19304; AND

WHEREAS, THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD WITH RESPECT TO ITS REGION HAS THE DUTY TO OBTAIN COORDINATED ACTION IN WATER QUALITY CONTROL AND IN THE ABATEMENT, PREVENTION AND CONTROL OF WATER POLLUTION AND NUISANCE; AND

WHEREAS, THE BENEFICIAL USES OF THE STANISLAUS AND SAN JOAQUIN RIVERS ARE DEPENDENT UPON WATER QUALITY CONDITIONS, AND THE PARTIES RECOGNIZE THAT WATER QUALITY CONDITIONS MAY BE PROTECTED AND ENHANCED BY FACILITIES CONSTRUCTED AND OPERATED UNDER A PERMIT AND LICENSE ISSUED ON APPLICATION 19304; AND

WHEREAS, AUTHORITY TO INVESTIGATE THE NEED FOR WATER QUALITY CONTROL IS CONTAINED IN THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1961 (PUBLIC LAW 87-88, APPROVED JULY 20, 1961) WHICH PROVIDES IN PART

> "...IN THE SURVEY OR PLANNING OF ANY RESERVOIRS OF THE CORPS OF ENGINEERS, BUREAU OF RECLAMATION, OR OTHER FEDERAL AGENCY, CONSIDERATION SHALL BE GIVEN TO INCLUSION OF STORAGE FOR REGULATION OF STREAMFLOW FOR THE PURPOSE OF WATER QUALITY CONTROL..."

AND, IN ADDITION, THE 1962 FLOOD CONTROL ACT AUTHORIZING THE NEW MELONES PROJECT (PUBLIC LAW 87-874) PROVIDES

> "...THAT THE SECRETARY OF THE ARMY GIVE CONSIDERATION DURING THE PRECONSTRUCTION PLANNING FOR THE NEW MELONES PROJECT TO THE ADVISABILITY OF INCLUDING STORAGE FOR THE REGULATION OF STREAMFLOW FOR THE PURPOSE OF DOWNSTREAM WATER QUALITY CONTROL...;"

AND

WHEREAS, COOPERATIVE STUDIES BY THE PUBLIC HEALTH SERVICE, BUREAU OF RECLAMATION, AND CORPS OF ENGINEERS OF WATER QUALITY REQUIREMENTS IN STANISLAUS RIVER AND LOWER SAN JOAQUIN RIVER FOR IRRIGATION, FISH, AND OTHER PURPOSES WERE MADE DEMONSTRATING THE FEASIBILITY OF ADDING WATER QUALITY CONTROL AS A FUNCTION OF THE NEW MELONES PROJECT; AND

WHEREAS, THE CONSTRUCTION OF THE NEW MELONES DAM BY THE UNITED STATES AND OPERATION, AS PROVIDED IN THIS AGREEMENT, WILL ASSIST IN PROVIDING PROTECTION AND ENHANCEMENT OF THE QUALITY OF THE WATERS OF THE STANISLAUS AND SAN JOAQUIN RIVERS AND IT IS MUTUALLY BENEFICIAL AND DESIRABLE THAT THE PARTIES FORMALIZE THEIR UNDERSTANDING BY THIS MEMORANDUM OF OPERATING AGREEMENT:

NOW, THEREFORE, THE UNITED STATES ACTING BY AND THROUGH THE BUREAU OF RECLAMATION, HEREINAFTER CALLED THE BUREAU, ITS SUCCESSORS AND ASSIGNS, AND THE STATE OF CALIFORNIA, ACTING BY AND THROUGH ITS CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD, HEREINAFTER CALLED THE REGIONAL BOARD, ITS SUCCESSORS AND ASSIGNS, AND IN CONSIDERATION OF THE PREMISES CONTAINED AGREE AS FOLLOWS:

1. THE BUREAU SHALL, IN ADDITION TO FISHERY REQUIREMENTS, RELEASE FROM NEW MELONES DAM, FOR WATER QUALITY CONTROL PURPOSES IN THE DOWNSTREAM REACHES OF THE STANISLAUS RIVER AND IN THE SAN JOAQUIN RIVER BELOW THE

CONFLUENCE OF THE TWO RIVERS, FLOWS NECESSARY TO MAINTAIN THE OBJECTIVES LISTED BELOW, BUT NOT IN EXCESS OF 70,000 ACRE-FEET IN ANY ONE YEAR. RELEASES OF WATER FOR QUALITY CONTROL PURPOSES SHALL BE SCHEDULED TO MAINTAIN THE OXYGEN LEVEL AT OR ABOVE 5 MILLIGRAMS PER LITER (MG/L) IN THE STANISLAUS RIVER AND THE LEVEL OF TOTAL DISSOLVED SOLIDS NOT TO EXCEED A MEAN MONTHLY CONCENTRATION OF 500 MG/L IN THE SAN JOAQUIN RIVER IMMEDIATELY BELOW THE MOUTH OF THE STANISLAUS RIVER. PROVIDED: THAT IF HYDROLOGIC OR OTHER CONDITIONS PREVENT MAINTENANCE OF A 500 MG/L TDS LEVEL ON A MEAN MONTHLY BASIS DURING THE ENTIRE YEAR IN THE SAN JOAQUIN RIVER IMMEDIATELY BELOW THE MOUTH OF THE STANISLAUS RIVER, OPERATIONAL RELEASES OF THE WATER QUALITY RESERVATION WILL BE RESTRICTED TO THE IRRIGATION SEASON IN ACCORDANCE WITH IRRIGATIONISTS' NEEDS.

2. THE BUREAU SHALL MAKE ALL REASONABLE EFFORTS TO PERFECT AND PROTECT WATER RIGHTS NECESSARY FOR THE WATER QUALITY RESERVATION AND FOR WATER QUALITY OPERATIONAL PURPOSES.

3. THE REGIONAL BOARD SHALL MAKE ALL REASONABLE EFFORTS TO SUPPORT THE BUREAU TO OBTAIN AND PROTECT WATER RIGHTS FOR THE WATER QUALITY RESERVATION OF THIS PROJECT AND TO PROTECT THE WATER RELEASED FOR WATER QUALITY CONTROL PURPOSES.

4. SHOULD THE BUREAU ASSIGN, CONVEY OR OTHERWISE DISPOSE OF ANY INTEREST IN THIS PROJECT OR RIGHTS PURSUANT TO APPLICATION 19304, SUCH DISPOSITION SHALL EXPRESSLY BE MADE SUBJECT TO THE PROVISIONS OF THIS AGREEMENT.

5. THE BUREAU AND THE REGIONAL BOARD HEREBY AGREE THAT THE PROVISIONS OF THIS AGREEMENT SHOULD BE INCLUDED BY WAY OF REFERENCE OR OTHERWISE IN ANY PERMIT OR LICENSE BY THE STATE WATER RESOURCES CONTROL BOARD OF CALIFORNIA PURSUANT TO WATER RIGHT APPLICATION 19304.

DATED: THIS 2 DAY OF July, 1969.

UNITED STATES BUREAU OF RECLAMATION

By _____
REGIONAL DIRECTOR, REGION 2

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

By _____
CHAIRMAN, CENTRAL VALLEY REGIONAL BOARD

## The Federal Antidegradation Policy
## (40 CFR 131.12)

(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the (Clean Water) Act.